AUTODOME 7000

VG5-7130, VG5-7230

BOSCH

en Operation Manual

Table of contents

1	**Safety EN**	**6**
1.1	About this Manual	6
1.2	Legal Information	6
1.3	Safety Precautions	6
1.4	Important Safety Instructions	6
1.5	Important Notices	8
1.6	Connection in Applications	11
1.7	Customer Support and Service	11
2	**Unpacking**	**13**
2.1	Parts List, Installation	13
2.2	Tools Required	14
2.3	Additional Products Required	16
3	**System overview**	**17**
4	**Pre-installation Checklist**	**19**
4.1	Stabilization	20
5	**Installing the Optional SD Card**	**21**
6	**Mount Power Supply Box (Wall, Mast (Pole), and Corner Mounts)**	**23**
7	**Installing the Pendant Arm Wall, Corner, and Mast (Pole) Mounts**	**25**
7.1	Description	25
7.2	Route Wires and Attach Connectors	25
7.3	Route Power through Intermediate Power Supply Box	29
7.4	Attach Pendant Arm to Power Supply Box	32
7.5	Make Connections in the Power Supply Box	33
7.6	Installing the VGA-PEND-WPLATE	34
7.7	Attach Pendant to Arm and Tighten	38
8	**Installing the Roof Parapet and Pipe Mounts**	**41**
8.1	Description	41
8.2	Route Wires and Attach Connectors	41
8.3	Attach Cover Door to Power Supply Box	47
8.4	Installing the VGA-ROOF-MOUNT	48
8.5	Installing the VG4-A-9543 Pipe Mount	50
8.6	Wire the Pipe Interface Board	52
8.7	Attach Pendant to Pipe and Tighten	56
8.8	Make Connections in the Power Supply Box	58
9	**Installing the In-Ceiling Mount**	**59**
9.1	Description	59
9.2	Dimensions	59
9.3	Prepare Drywall Ceiling for Installation	59
9.4	Prepare Suspension Ceiling for Installation	59
9.5	Wire the Interface Box	61
9.6	Interface Box Connections	62
9.7	Installing the Ceiling (IP54 Housing) Gasket	64
9.8	Attach Housing to the Interface Box	65
9.9	Secure Housing to Ceiling	67
10	**Preparing the Bubble**	**68**
11	**Connection**	**71**
11.1	Connecting the AUTODOME camera to the PC	71

11.2	Power Cable and Wire Distances Guides	71
11.3	Ethernet Connections	72
11.4	Fiber Optic Ethernet Media Converter (Optional)	73
11.5	Alarms and Relay Connections	74
11.6	Audio Connections (Optional)	77
12	**Configuration**	**80**
12.1	System Requirements	80
12.2	Configuring the Camera	81
12.3	Configuring Audio (Optional)	84
13	**Configuration via IP, Basic Mode**	**85**
13.1	Basic Mode: Device Access	85
13.2	Basic Mode: Date/Time	85
13.3	Basic Mode: Network	85
13.4	Basic Mode: Encoder	86
13.5	Basic Mode: Audio	86
13.6	Basic Mode: Recording	86
13.7	Basic Mode: System Overview	87
14	**Configuration via IP, Advanced Mode**	**88**
14.1	Advanced Mode: General	88
14.2	Identification	88
14.3	Password	88
14.4	Date/Time	89
14.5	Display Stamping	90
14.6	Advanced Mode: Web Interface	92
14.7	Appearance	92
14.8	LIVE Functions	93
14.9	Logging	94
14.10	Advanced Mode: Camera	94
14.11	Installer Menu	94
14.12	Encoder Profile	96
14.13	Encoder Streams	98
14.14	Privacy Masks	100
14.15	Picture Settings	100
14.16	Lens Settings	103
14.17	PTZ Settings	104
14.18	Scenes and Tours	105
14.19	Sectors	106
14.20	Miscellaneous	106
14.21	Logs	106
14.22	Audio	106
14.23	Pixel Counter	107
14.24	Advanced Mode: Recording	107
14.25	Storage Management	107
14.26	Recording Profiles	109
14.27	Maximum Retention Time	110
14.28	Recording Scheduler	111
14.29	Recording Status	112
14.30	Advanced Mode: Alarm	112
14.31	Alarm Connections	112

14.32	VCA	114
14.33	Virtual Masks	118
14.34	Audio Alarm	118
14.35	Alarm E-Mail	119
14.36	Alarm Task Editor	120
14.37	Alarm Rules	120
14.38	Advanced Mode: Interfaces	121
14.39	Alarm Inputs	121
14.40	Alarm Outputs	121
14.41	Advanced Mode: Network	122
14.42	Network Access	122
14.43	DynDNS	124
14.44	Advanced	125
14.45	Network Management	125
14.46	Multicast	126
14.47	Image Posting	127
14.48	Accounts	128
14.49	IPv4 Filter	128
14.50	Encryption	128
14.51	Advanced Mode: Service	129
14.52	Maintenance	129
14.53	Licenses	130
14.54	Diagnostics	130
14.55	System Overview	130
15	**Operation**	**131**
15.1	Using the AUTODOME Camera	131
15.2	Using Intelligent Tracking	139
15.3	Recommended Use of Your Camera	141
16	**Troubleshooting**	**144**
17	**Maintenance**	**146**
18	**Technical data**	**148**
19	**User Command Table**	**149**

1 Safety EN

1.1 About this Manual

This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. Because of the ongoing development of products, the content of the manual may change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness, or discrepancies between the manual and the product described.

1.2 Legal Information

Copyright
This manual is the intellectual property of Bosch Security Systems, Inc. and is protected by copyright. All rights reserved.

Trademarks
All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

1.3 Safety Precautions

Danger!
Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Warning!
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Caution!
Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Notice!
Indicates a situation which, if not avoided, could result in damage to the equipment or environment, or data loss.

1.4 Important Safety Instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning -** Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources -** Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.

3. **Ventilation -** Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Object and liquid entry -** Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
5. **Lightning -** For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.
6. **Controls adjustment -** Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
7. **Overloading -** Do not overload outlets and extension cords. This can cause fire or electrical shock.
8. **Power cord and plug protection -** Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
9. **Power disconnect -** Units have power supplied to the unit whenever the power cord is inserted into the power source, or when High Power-over-Ethernet (High PoE) power is provided over the Ethernet CAT 5E/6 cable. The unit is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect device for switching off the voltage for all units. When High PoE or PoE+ (820.3at) is used to power the unit, the power is provided over the Ethernet cable, which is then the main power disconnect device for switching off the voltage for all units.
10. **Power sources -** Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
    For battery powered units, refer to the operating instructions.
    For external power supplied units, use only the recommended or approved power supplies.
    For limited power source units, this power source must comply with *EN60950*.
    Substitutions may damage the unit or cause fire or shock.
    For 24 VAC units, voltage applied to the unit's power input should not exceed ±10%, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
    If unsure of the type of power supply to use, contact your dealer or local power company.
11. **Servicing -** Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
12. **Damage requiring service -** Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
    the power supply cord or plug is damaged;
    exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
    liquid has been spilled in or on the equipment;

an object has fallen into the unit;
unit has been dropped or the unit cabinet is damaged;
unit exhibits a distinct change in performance;
unit does not operate normally when the user correctly follows the operating instructions.

13. **Replacement parts -** Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
14. **Safety check -** Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
15. **Installation -** Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
16. **Attachments, changes or modifications -** Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.5 Important Notices

Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Camera grounding - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector (see section: Connecting external power supply).

Camera lens - An assembled camera lens in the outdoor housing must comply and be tested in accordance with *UL/IEC60950*. Any output or signal lines from the camera must be SELV or Limited Power Source. For safety reasons the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C (14 °F) to 50 °C (122 °F).

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

Coax grounding:

– Ground the cable system if connecting an outside cable system to the unit.
– Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.

– Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
– Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70*, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Notice!

This device is intended for use in public areas only.

U.S. federal law strictly prohibits surreptitious recording of oral communications.

Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Electrostatic-sensitive device - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards, and when inserting into or removing the SD card from the SD card slot.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Grounding and polarization - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other blade). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately, this unit may be equipped with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224* and *CEC Section 60)*.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.

Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

High PoE or PoE+ (802.3at) – Never supply power via the Ethernet connection (High PoE or PoE+) when power is already supplied via the power connector, unless implementing an Auxiliary Power application (described in the section *Connection in Applications, page 11*).
Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.
SELV - All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.
Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.
Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

Notice!
This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC & ICES Information
(U.S.A. and Canadian Models Only)
This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:
– this device may not cause harmful interference, and
– this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a **commercial environment**. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.
Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.
The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Informations FCC et ICES
(modèles utilisés aux États-Unis et au Canada uniquement)
Ce produit est conforme aux normes FCC partie 15. la mise en service est soumises aux deux conditions suivantes :
– cet appareil ne peut pas provoquer d'interférence nuisible et
– cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumit, y compris les interférences qui pourraient influer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de **Classe A** en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une **installation commerciale**. Cette appareil génère, utilise et émet de l'energie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais.
Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : How to Identify and Resolve Radio-TV Interference Problems (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.
UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

1.6 Connection in Applications

24 VAC power source: This unit is intended to operate with a limited power source. The unit is intended to operate at 24 VAC (if High PoE is not available). User supplied wiring must be in compliance with electrical codes (Class 2 power levels).

High Power-over-Ethernet (High PoE): This unit can by powered via High PoE. To power the unit this way, use only approved High PoE devices – those offered or recommended by Bosch. High PoE can be connected at the same time as a 24 VAC power supply. If auxiliary power (24 VAC to camera and to heater) and High PoE are applied simultaneously, the camera usually selects auxiliary input (24 VAC) and will usually draw minimal power from the Bosch High PoE midspan.
For pendant models used in outdoor applications that require heaters, a Bosch High PoE 60W midspan (NPD-6001A, sold separately) is required to power both the camera and its internal heaters.
For in-ceiling or indoor pendant applications that don't require heater power, standard PoE+ (802.3at) midspans or switches can be used to power the camera.

1.7 Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

Telephone: 800-366-2283 or 585-340-4162
Fax: 800-366-1329
Email: cctv.repair@us.bosch.com

Customer Service

Telephone: 888-289-0096
Fax: 585-223-9180
Email: security.sales@us.bosch.com

Technical Support

Telephone: 800-326-1450
Fax: 585-223-3508 or 717-735-6560
Email: technical.support@us.bosch.com

Repair Center

Telephone: 585-421-4220
Fax: 585-223-9180 or 717-735-6561
Email: security.repair@us.bosch.com

Canada

Telephone: 514-738-2434
Fax: 514-738-8480

Europe, Middle East & Africa Region

Please contact your local distributor or Bosch sales office. Use this link:
http://www.boschsecurity.com/startpage/html/europe.htm

Asia Pacific Region

Please contact your local distributor or Bosch sales office. Use this link:
http://www.boschsecurity.com/startpage/html/asia_pacific.htm

More Information

For more information please contact the nearest Bosch Security Systems location or visit www.boschsecurity.com

2 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.
Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative. Refer to Customer Support and Service, for contact information.
The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.

2.1 Parts List, Installation

The following table lists the parts included in the shipping box for In-ceiling models of AUTODOME 7000.

In-ceiling Mount	
Quantity	**Item**
1	AUTODOME 7000 In-Ceiling camera with acrylic bubble and white trim ring
1	Interface box
1	Optional black trim ring
1	Ceiling gasket (for IP54 conformance)
1	Product DVD (which includes complete Operation Manual)
1	Packet of printed Safety literature

To mount an In-ceiling mount model of AUTODOME 7000, you must purchase a Bracket Assembly Support Kit (part number VGA-IC-SP). This Kit is sold separately from the camera.
The following table lists the parts included in the shipping box for pendant models of AUTODOME 7000.

Pendant Mount	
Quantity	**Item**
1	AUTODOME 7000 Pendant camera with clear acrylic bubble and sunshield
1	Product DVD (which includes complete Operation Manual)
1	Packet of printed Safety literature

The following table lists the optional parts, sold separately, that you may need for attaching a Pendant to the Arm Wall, Corner, or Mast mount packages.

Mounting Options	**Part Numbers**
Pendant Arm (Only)	VGA-PEND-ARM
Pendant Arm with Mounting Plate (24 V VG5 models only, no power supply box)	VGA-PEND-WPLATE
Pendant Arm with one of the following Power Supply Boxes:	
– Power Box without transformer (24 VAC)	VG4-A-PA0

Mounting Options	Part Numbers
– Power Box with 120 VAC transformer or with 230 VAC transformer	VG4-A-PA1 VG4-A-PA2
Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2
Trim Skirt for Power Supply Box (optional)	VG4-A-TSKIRT
Bosch High PoE 60W midspan	NPD-6001A
Corner Mount Kit	
– Corner Mount Plate	VG4-A-9542
Mast (Pole) Mount Kit	
– Mast Mount Plate	VG4-A-9541
– Fiber Optic Ethernet Media Converter Kit	VG4-SFPSCKT

The following table lists the mandatory parts, sold separately, that you will need for attaching a Pendant to the Roof Parapet and Pipe mount packages:

Mounting Options	Part Numbers
Parapet (Roof) Mount with one of the following Power Supply Boxes:	VGA-ROOF-MOUNT
– Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2
Pipe Mount with one of the following Power Supply Boxes:	VG4-A-9543
– Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2

The following table lists the optional parts, sold separately, that you may need for attaching a Pendant to the Roof Parapet and Pipe mount packages:

Mounting Options	Part Numbers
Optional Flat Roof Mount Adapter for VGA-ROOF-MOUNT	LTC 9230/01

2.2 Tools Required

Quantity	Item	For Mount Type	Supplied by Bosch?
1	Allen wrench, 5 mm	Pendant Arm to: – Wall Mount – Corner Mount – Mast (pole) Mount – Roof parapet Mount – Pipe Mount	Yes

1	Screwdriver, straight-blade, 2.5 mm (0.1 in.)	– Pendant Arm to:
		  – Wall Mount
		  – Corner Mount
		  – Mast (pole) Mount
		  – Roof parapet Mount
		  – Pipe Mount
		– In-ceiling Mount
			No

1	Screwdriver, straight-blade, 3.1 mm (1/8 in.)	– Pendant Arm to:
		  – Wall Mount
		  – Corner Mount
		  – Mast (pole) Mount
		  – Roof parapet Mount
		  – Pipe Mount
		– In-ceiling Mount
			No

1	Screwdriver, No. 2 Phillips	– Pendant Arm to:
		  – Wall Mount
		  – Corner Mount
		  – Mast (pole) Mount
		  – Roof parapet Mount
		  – Pipe Mount
		– In-ceiling Mount
			No

1	Socket wrench	Pendant Arm to: – Wall Mount – Corner Mount – Mast (pole) Mount – Roof parapet Mount – Pipe Mount	No
1	Socket, 9/16-in.	Pendant Arm to: – Wall Mount – Corner Mount – Mast (pole) Mount – Roof parapet Mount – Pipe Mount	No
1	Banding tool (Bosch P/N TC9311PM3T)	Mast (pole) mount	Yes, but sold separately from mount
1	Right angle NPS conduit connector, 3/4 in. (20-mm)	Mast (pole) mount with VGA-PEND-WPLATE	No
1	Screwdriver, medium straight blade	– Roof parapet Mount – Pipe Mount	No
1	Screwdriver, No. 1 Phillips	– Roof parapet Mount – Pipe Mount	No
1	Pipe wrench	– Roof parapet Mount – Pipe Mount	No

1	Barrel connector	– Roof parapet Mount – Pipe Mount **Only if installing a fiber optic model**	No
1	Appropriate tool for cutting a hole in drywall or ceiling tile	In-ceiling Mount	No
1	Pliers	In-ceiling Mount	No

2.3 Additional Products Required

The following table lists additional products, sold separately by Bosch or other manufacturers, necessary to install AUTODOME cameras.

Quantity	Product	Part Number	Size
1	SD card	(user-supplied)	
---	Water tight metal conduit	(user-supplied)	20 mm (0.75 in.)
--	UL-listed liquid tight strain reliefs	(user-supplied)	
--	Weatherproof sealant	(user-supplied)	
4	Studs, stainless steel, corrosion-resistant	(user-supplied)	6.4 mm (0.25 in.) to 8 mm (5/16 in.)

3 System overview

The AUTODOME 7000 Series camera includes the following functionality:

Function	Description
Video Encoding	The camera uses the H.264 compression standards and ensures that the data rate remains low even with high image quality and can also be adapted to local conditions within wide limits.
Streaming	Encodes multiple data streams simultaneously according to individually customized profiles. This feature creates data streams that can serve different purposes. For example, one (1) data stream for recording and one (1) data stream optimized for transmission over the Local Area Network (LAN).
Multicast	Enables simultaneous, real-time transmission to multiple receivers. The network must implement the UDP and IGMP V2 protocols as a prerequisite for Multicasting.
Configuration	Allows configuration for all camera settings from a Web browser on the local network (Intranet) or on the Internet. You can also update the firmware, load device configurations, store configuration settings, and copy these settings from one camera to another.
Intelligent Tracking	Continuously follows an individual. Intelligent Tracking operates by recognizing an individual in motion and zooms-in to approximately 50% of the field of view for an average target height of six feet.
Snapshots	Allows you to take and store individual video frames as JPEG images from the Web browser interface.
Record	Allows configuration for the recording options of the IP module. You can record video from the LIVE page to a hard drive or to a customer-provided SD card.
Playback	Allows playback of stored video from a customer-provided SD card.

Models with the 30x optical zoom have additional features, including the following.

Anti-fog feature	Significantly improves visibility when viewing foggy or other low-contract scenes.
Intelligent Dynamic Noise Reduction (iDNR)	IVA / VCA controls the iDNR feature, which reduces noise based on motion activity in the scene. When there is no motion in the preset scene, noise reduction is increased. When the camera detects motion in the preset scene, noise reduction is decreased to reduce bandwidth and optimize storage space.
Image Stabilization	This feature allows the camera to detect continuous vibration. If it detects vibration, the camera dynamically corrects the shaky video in both the vertical and horizontal axis, resulting in exceptional image clarity and a stable field of view on the monitor.

Planning information

4 Pre-installation Checklist

1. Determine the location and distance for the power supply box based on its voltage and current consumption.
   You may choose to route the main power supply through an intermediate power supply box (VG4-PSU1 or VG4-PSU2) before connecting the power to the pendant arm power supply box (VG4-PA0).

Caution!
Select a rigid mounting location to prevent excessive vibration to the camera.

2. Use only UL-listed liquid tight strain reliefs for conduits to the Power Supply Box to ensure that water cannot enter the box. You must use water tight conduits and fittings to meet NEMA 4 standards.
3. Purchase the appropriate mounting hardware to use, depending on the location of the camera, either wall mount, corner mount, or mast (pole) mount.
   If your application contains a Power Supply Box, refer to *Mount Power Supply Box (Wall, Mast (Pole), and Corner Mounts), page 23*.
   If you are using the Mounting Plate with a 24 V AUTODOME camera, refer to *Installing the VGA-PEND-WPLATE, page 34*.

Warning!
For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

Warning!
To minimize the potential for corrosion on the housing, use only Bosch hardware and mounts. See number 5 (Installation in a corrosive environment) in the section *Recommended Use of Your Camera, page 141* for more information.

1. Install all external wiring including power, control, video coax, alarms I/O, relay I/O, and fiber optic cabling. Refer to the *Connection, page 71* chapter for required cable types and allowed lengths.

Warning!
Install external interconnecting cables in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.
Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm must be incorporated.
24 VAC Class 2 power supply only.

2. To install the In-ceiling Mount, verify that a minimum of 216 mm (8.5 in.) of air space above the ceiling is available.

3. If you plan to use the Intelligent Tracking feature, refer to *Using Intelligent Tracking, page 139*, before mounting the camera.

4.1 Stabilization

Surveillance cameras are susceptible to vibrations caused by wind or vibrations emanating from the medium to which the camera is attached. Cameras attached to a pole, roof, or to a bridge are especially vulnerable. Bosch offers the following recommendations to stabilize an AUTODOME 7000 and to decrease the affects of vibration on transmitted images, privacy masks, and Intelligent Tracking.

Pole and Mast Mounts

- Use a pendant arm with the Pole Mount Adapter (VG4-A-9541).
  - Do not attach a parapet mount to a pole or mast.
- Use a pole designed specifically for CCTV cameras:
  - Do not use a tapered pole.
  - Do not use a pole that has signs or other equipment attached.
- Consult EPA rating / Wind load data to select an appropriate pole.

Roof Mounts

- Mount the camera in the most stable location on the roof.
- Avoid locations affected by vibrations such as those caused by a rooftop air conditioner.
- Use guy wires to stabilize the AUTODOME against strong winds.
- Use the LTC 9230/01 Flat Roof Mount Adapter where appropriate. This adapter is made specifically for AUTODOME roof applications.

Extreme Mount Applications

Unique camera mounting applications that are impacted by extreme high winds, heavy traffic, or other conditions may require additional measures to stabilize the camera. Contact a manufacturer that specializes in passive vibration suppression using either damping or isolation.

5 Installing the Optional SD Card

The camera can accept a customer-supplied SDHC or SDXC memory card (hereafter referred to as “SD card”) for local storage. (The camera will not accept MicroSD cards.) Using an SD card is optional.
Ideally, you should install the SD card before mounting the camera. To install the SD card, follow these steps:

Caution!
Risk of electrostatic discharge!
Use proper CMOS/MOS-FET handling precautions and observe proper ESD safety precautions (such as wearing grounded wrist straps) to avoid electrostatic discharge.

Warning!
Bosch recommends disconnecting power to the camera while adding or removing an SD card.

1. Follow the steps in one of these sections (depending on the type of camera mount): *Remove the bubble from an in-ceiling housing, page 68* or *Remove the bubble from a pendant housing, page 68*.
2. Locate the SD card slot (item one in the figure below).

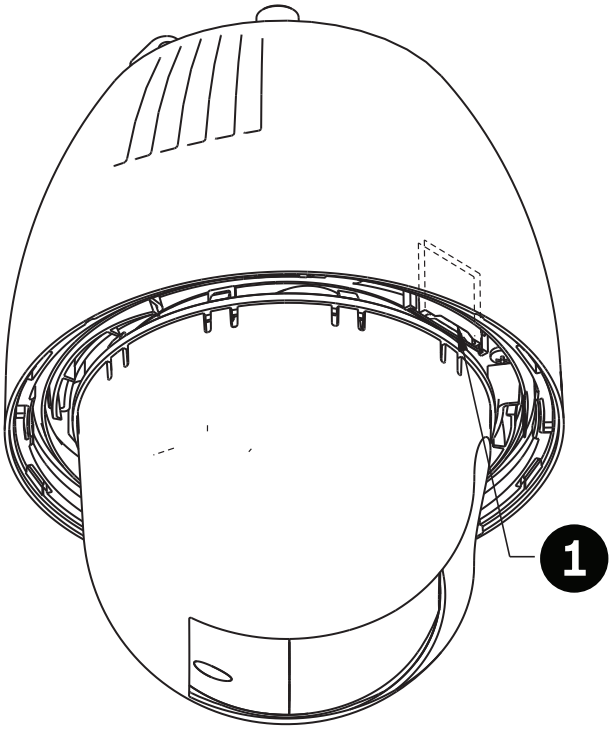


Figure 6.1: Camera cross section with SD card slot

3. Orient the card so that the side with the golden contacts faces away from the dome and towards the housing. The contacts should be at the top as you hold the SD card.
4. Slide the SD card into the slot. Press down the end of the SD cards until you hear a click and the card locks into place.

5. Follow the steps in one of these sections (depending on the type of camera mount): *Replace the bubble in an in-ceiling housing, page 70* or *Replace the bubble in a pendant housing, page 70*.

6 Mount Power Supply Box (Wall, Mast (Pole), and Corner Mounts)

Before mounting the Power Supply Box, decide if you should wire the box through the holes in the bottom or back of the box. If wiring the box through the back, move the two (2) seal plugs to the bottom through the holes before mounting.

Notice!

Use 3/4-inch (20-mm) NPS fittings for the holes on the bottom and back of the box. Use 1/2-inch (15-mm) NPS fittings for the side holes.

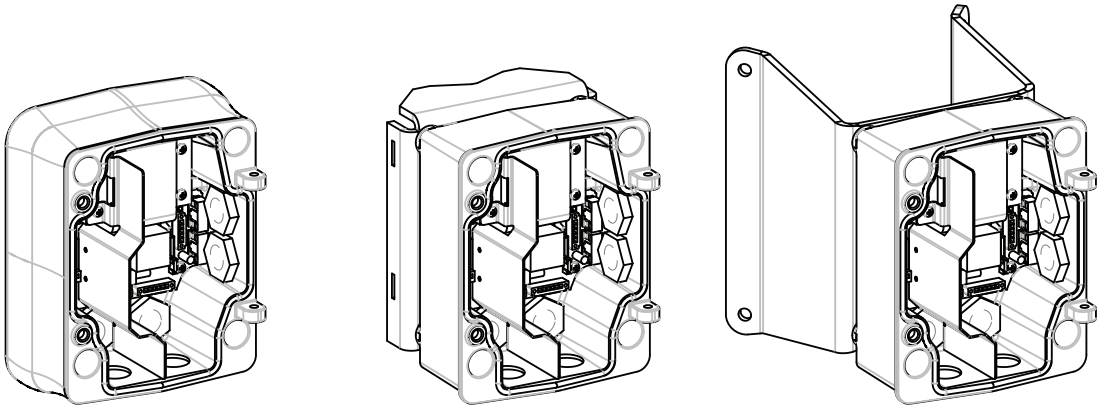


Figure 7.1: Power Supply Wall, Mast (Pole), and Corner Mounts

1. Use the wall mount template supplied in the packaging box to locate the four (4) mounting holes for the Power Supply Box.
2. Drill four (4) holes for the mounting anchors. If installing outdoors, apply a weatherproof sealant around each hole at the mounting surface.

Warning!

A stud diameter of 6.4 mm (1/4 inch) to 8 mm (5/16 inch) able to withstand a 120 kg (265 lb) pull-out force is recommended. The mounting material must be able to withstand this pull out force. For example, 19-mm (3/4-inch) minimum for plywood.

3. Place the Power Supply Box into the optional Trim Skirt.
4. Secure the Power Supply Box to the mounting surface.
   For a Wall installation: Use four (4) corrosion-resistant, stainless steel studs (not supplied). Then proceed to Step 5 below.
   For a Corner installation: Secure the Corner Plate to the wall corner using four (4) studs (not included). Then proceed to Step 5 below.
   For a Mast or a pole installation: The metal straps included with the Mast mount accommodate a pole with a diameter of 100–380 mm (4–15 in.). You must use a banding tool (sold separately) for a mast or pole installation. Follow the instructions provided with the banding tool to securely mount the Mast Plate to the pole. Contact your Bosch Sales Representative to order Banding Tool P/N TC9311PM3T.
5. Secure the Power Supply Box to the Corner Plate or Mast Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).
6. Attach 3/4-inch (20-mm) NPS watertight, earth-grounded conduit pipe fittings (not supplied) to the bottom or back holes of the Power Supply Box through which you will run the power, video, and control data wires.

Warning!

For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

7 Installing the Pendant Arm Wall, Corner, and Mast (Pole) Mounts

7.1 Description

This chapter details how to install an AUTODOME to a Wall, Corner, or Mast (pole) mount. Any differences to the installation between these two mounting systems are noted.

7.2 Route Wires and Attach Connectors

Notice!
If you plan to route the power through an intermediate power supply box, refer to *Route Power through Intermediate Power Supply Box, page 29*.

Power wires must be routed to the left (front) side of the Power Supply Box through a separate electrically earth-grounded conduit. All video, control, and alarm wires must be routed through a second electrically earth-grounded conduit to the right side of the box.

Warning!
External interconnecting cables are to be installed in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.
Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm (0.12 in.) must be incorporated.

Making the Connections

Notice!
Refer to the *Connection, page 71* chapter for wire specifications and distances.

1. Route all video, control, and alarm wires through the earth-grounded conduit fitting on the right side of the power box.
2. Route the high voltage 115/230 VAC lines through the earth-grounded conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
3. Cut and trim all wires with sufficient slack to reach their connector terminals in the box, but not so long as to be pinched by or to obstruct closing the Pendant Arm. Refer to the image above for the connector locations.
4. Attach the supplied 3-pin Power Plug to the incoming power wires. Refer to connector P101 for wire connections.
5. If audio input and/or audio output is required, attach the supplied 6-pin SERIAL COMMUNICATIONS to P106 in the Power Supply Box. Refer to connector P106 in the Power Supply Box Connections section below.
6. Attach an RJ45 plug to the incoming Ethernet cable.

Connecting Alarm Inputs and Outputs

- To connect alarm inputs and outputs, attach the supplied 6-pin Alarms In and the 4-pin Alarms Out connector plugs with flying lead wires to the appropriate incoming alarm wires. Alarm Out 4 is a relay.

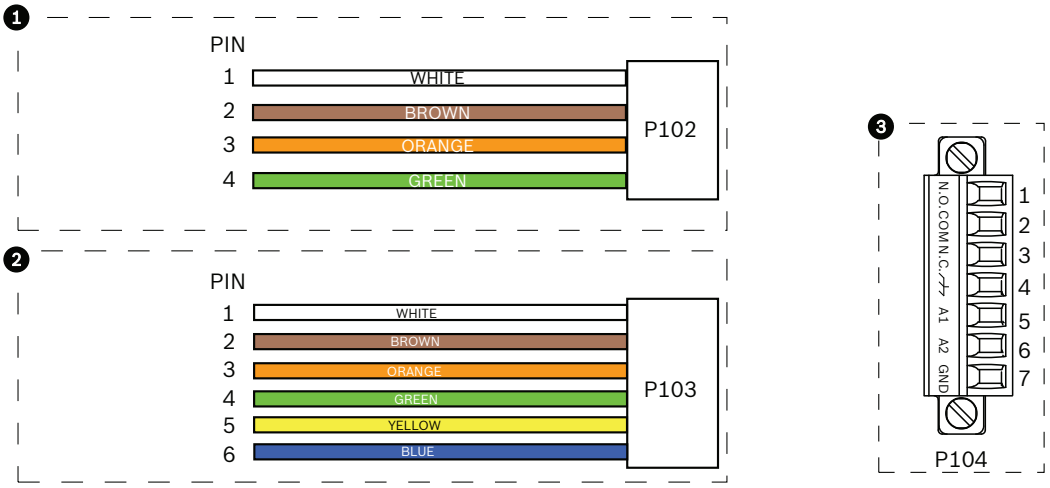


Figure 8.1: Alarm and relay connectors

1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm in 3	1	Alarm Out 4 Normally Open
2	Alarm Out 2	2	Alarm in 4	2	Alarm Out 4 COM
3	Alarm Out 3	3	Alarm in 5	3	Alarm Out 4 Normally Closed
4	Alarm Ground	4	Alarm in 6	4	Earth Ground
		5	Alarm in 7	5	Analog Alarm 1
		6	Alarm Ground	6	Analog Alarm 2
				7	Ground
For in-ceiling mount only: Low Voltage TTL (3.3V) can also be used.					

- If you are connecting supervised alarms and relays, attach the supplied 7-pin Relay Connector to the appropriate incoming wires. Refer to *Make Connections in the Power Supply Box, page 33* for additional information.

Power Supply Box Connections

The following figure is a detailed illustration of the Pendant Arm Power Supply Box, which includes the fuse specifications.

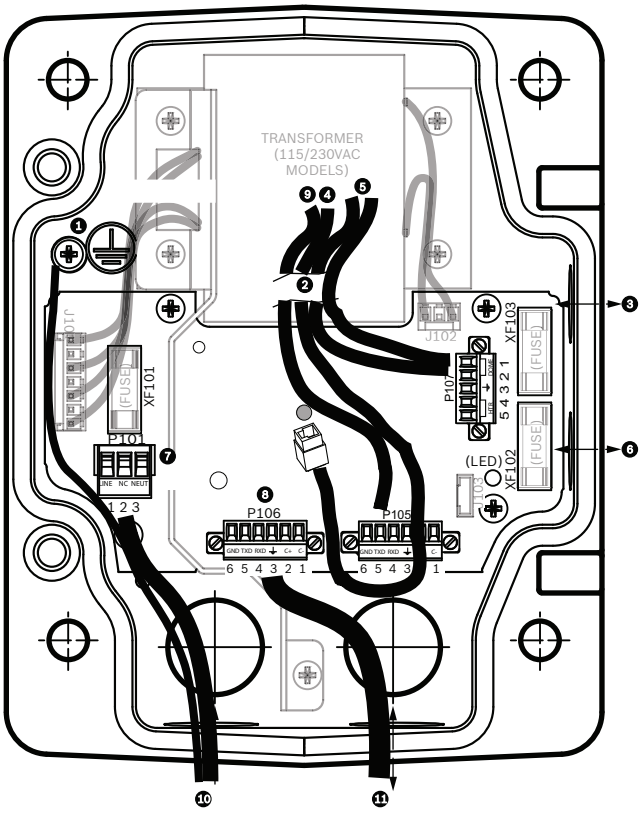


Figure 8.2: Pendant arm power supply box

1	Ground Screw	7	P101 Connector; Power In (120 VAC / 220 VAC)
2	From Harness (Nexus cable bundle)	8	P106 Connector; Control In/Out for external audio input and output
3	In/Out; 1/2 in. (15 mm) NPS Fitting	9	P105 Connector; Audio to camera
4	Ethernet connector	10	Power In; 3/4 in. (20 mm) NPS Fitting
5	P107 Connector; 24 VAC to camera	11	Audio Input/Output; 3/4 in. (20 mm) NPS Fitting (labeled “SERIAL COMMUNICATIONS”)
6	In/Out; 1/2 in. (15 mm) NPS Fitting		

Warning!

In earlier Bosch AUTODOME cameras, cable 8 in the ARM mount is labeled “Control In/Out” and was used for external RxD/TxD and Biphase communications. In the AUTODOME 7000 Series cameras: If you are mounting an AUTODOME 7000 Series camera to an ARM mount that was wired for an earlier model of Bosch AUTODOME, you must either re-wire cable 8 to be audio input and output, or disconnected it from the power supply.

Cables/wires that are routed through number 2 in the illustration above come from the Nexus cable bundle that is in the pendant Arm.

Fuse Specifications			
Volts	**XF101 Mains**	**XF102 Camera**	**XF103 Heater**
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

Warning!
Fuse replacement by qualified service personnel only. Replace with same type fuse.

Fuse Specifications			
Volts	**XF101 Mains**	**XF102 Camera**	**XF103 Heater**
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

The following table lists the Power Supply Box connectors:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	115/230 VAC or 24 VAC Power In	Line	NC	Neutral			
P106	SERIAL COMMUNICATIONS	CODE- (Audio IN-, Audio in signal ground)	CODE+ (Audio IN+)	Earth GND (Ground) (Audio)	RXD (Audio OUT+)	TXD (Audio OUT-; Audio out signal ground)	Signal GND (Ground)
P107	24 VAC Power (Arm Harness)	Camera 24 VAC	Camera 24 VAC	Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

Table 8.1: Power Supply Box Connections

Notice!
Pins for P106 1, 2, 4, and 5 are used for audio input and output for AUTODOME 7000 Series cameras; however, their labels are still those of previous versions of analog AUTODOME cameras.

Warning!

For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

7.3 Route Power through Intermediate Power Supply Box

You may route the main power supply through a VG4-PSU1 (120 V transformer) or through a VG4-PSU2 (230 V transformer) Power Supply Box before connecting the power to a VG4-PA0 (24 V, no transformer) Power Supply Box. The main issue with this configuration is that the 5-pin power out connector from the VG4-PSU1 or VG4-PSU2 does not match to the 3-pin power input of the VG4-PA0 power supply. The illustration below depicts:

- A VG4-PSU1/VG4-PSU2 Power Supply Box.
- The main power supply connected to the P101 connector and to the grounding screw.
- The 24 VAC power out wire connected to the P107 heater power connectors.

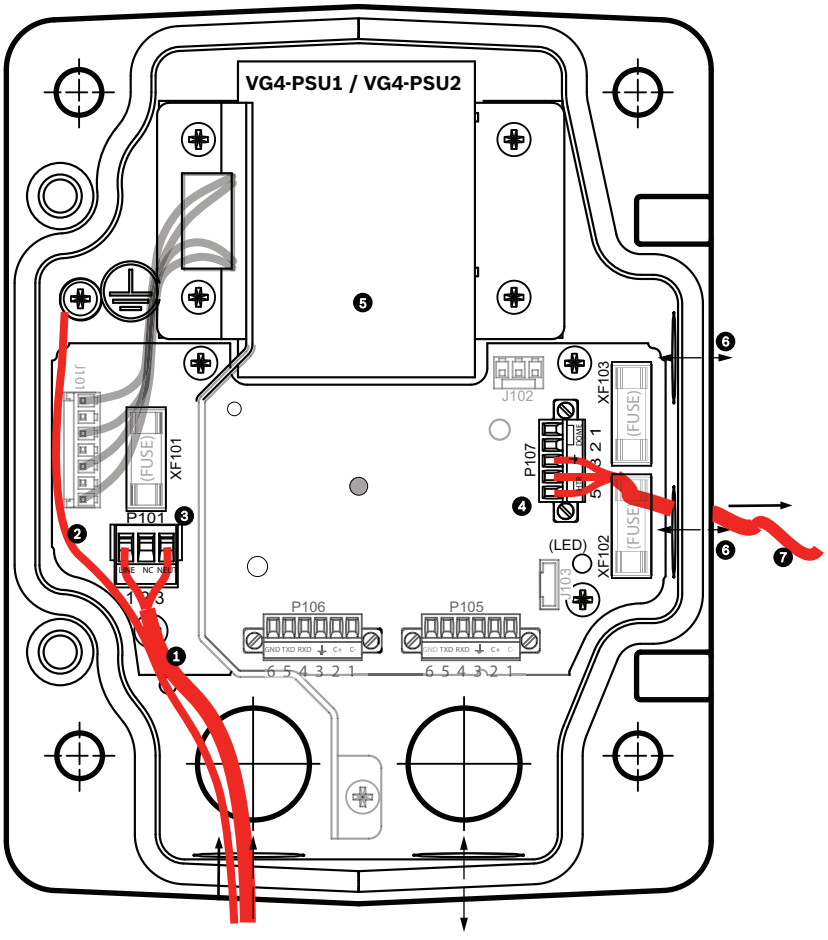


Figure 8.3: VG4-PSU1/VG4-PSU2

1	120/230 VAC Power In	5	Transformer
2	Ground Wire	6	In/Out Conduit (1/2 in. [15 mm] NPS Fitting
3	P101 Connector	7	24 VAC Power Out to VG4-PA0
4	P107 Connector		

To properly wire the incoming high voltage and the outgoing low voltage lines, refer to this table:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	120/230 VAC Power In	Line	NC	Neutral			
P107	24 VAC Power Out			Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

Table 8.2: VG4-PSU1/VG4-PSU2 Power Supply Box Connections

1. Route the high voltage 120/230 VAC lines through the earth-grounded conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
2. Cut and trim the high voltage 120/230 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
3. Attach the supplied 3-pin power plug to the incoming high voltage power wires in the box. Refer to connector P101 in the table above and to the image below for an illustration of these connections:

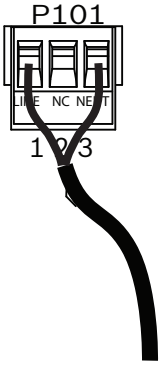


Figure 8.4: Incoming 115/230 VAC power supply

4. Attach the ground wire to the grounding screw.
5. Connect three wires to the P107 Power Out connector to route the 24 VAC power supply to the VG4-PA0 Power Supply Box.
   Connect the first wire to pin 5 (HN: Heater Neutral) connector.
   Connect the second wire to pin 4 (HL: Heater Line) connector.
   Connect the third wire to pin 3 (Earth Ground) connector.
   Refer to connector P107 in the table above and to the image below for an illustration of these connections:

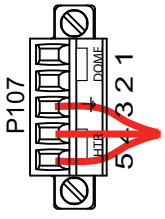


Figure 8.5: Outgoing 24 VAC power supply

Warning!

Ensure that you connect the outgoing power supply wires to the P107 heater connectors (HN and HL). The heater power (XF103) fuse can handle a higher amperage (3.15 A) than the camera power (XF102) fuse (2.0 A).

6. Route the 24 VAC outgoing power supply wires into the VG4-PA0 power supply box through the conduit fitting on the left side of the box.
7. Cut and trim the 24 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
8. Attach the supplied 3-pin power plug to the incoming 24 VAC power wires in the box, as illustrated below.

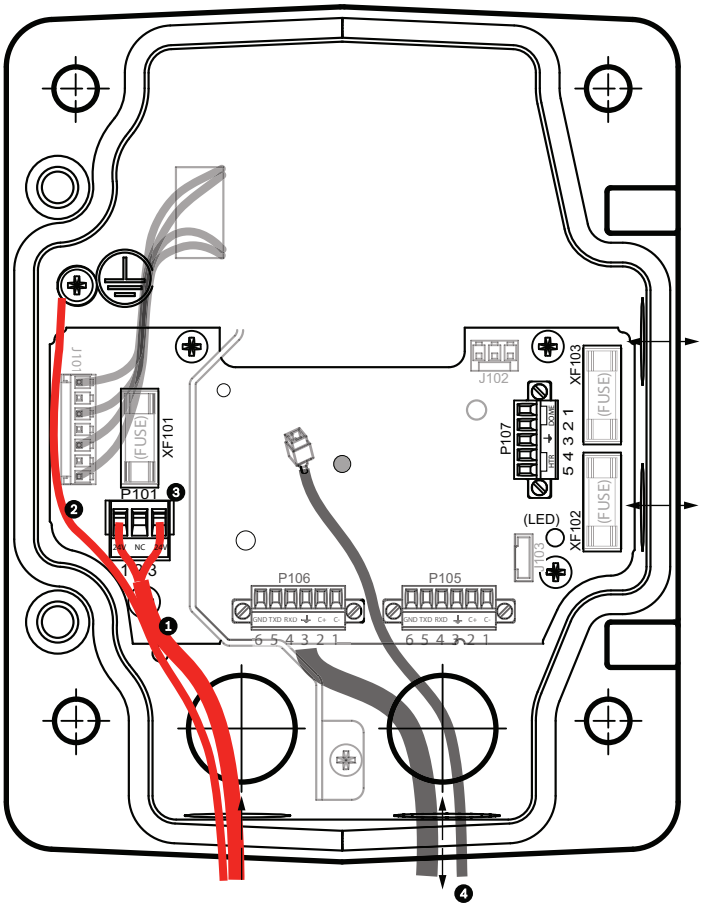


Figure 8.6: VG4-PA0 Power Supply Box

1	Incoming 24 VAC Power Supply Wires (from VG4-PSU1/VG4-PSU2 power supply box)
2	Ground Wire
3	P101 Connector
4	Control Data and Video In/Out Wires (analog models only)

9. Follow the instructions in *Attach Pendant Arm to Power Supply Box, page 32* to continue the installation.

7.4 Attach Pendant Arm to Power Supply Box

The bottom hinge pin of the Pendant Arm is provided with a Hinge Pin Stop to hold the hinge open while attaching the arm to the Power Supply Box.

1. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the Hinge Pin Stop.

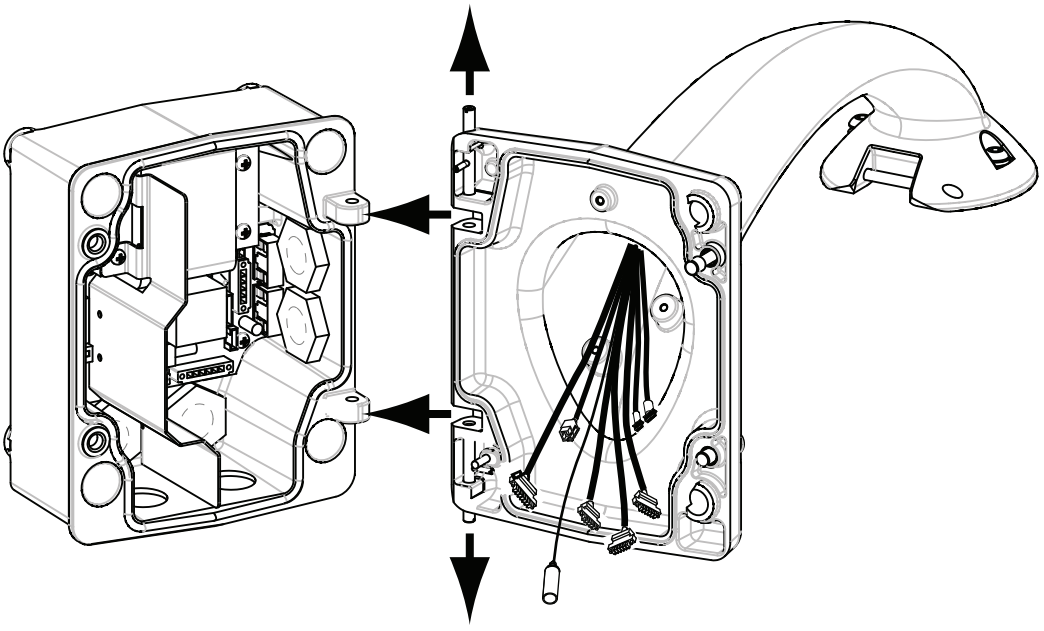


Figure 8.7: Pendant Arm to Power Box Hinge Alignment

2. Open the top hinge by pushing its pin lever up and holding it.

Notice!
Both Hinge Pins must be fully compressed to open (unlock) the hinges of the Pendant Arm and before proceeding to the next step.

3. While continuing to hold the top hinge pin open and align the top and bottom hinges of the Pendant Arm to their mating points on the Power Supply Box. See the illustration above.
4. Once you have aligned the hinges, release the top hinge pin to engage its mating hinge on the power box. Then release the bottom hinge pin from the Hinge Pin Stop to lock the Pendant Arm to the Power Supply Box.

Warning!
Serious injury or death can occur if the hinge pins of the Pendant Arm are not fully engaged (locked) to the Power Supply Box. Exercise caution before releasing the Pendant Arm.

7.5 Make Connections in the Power Supply Box

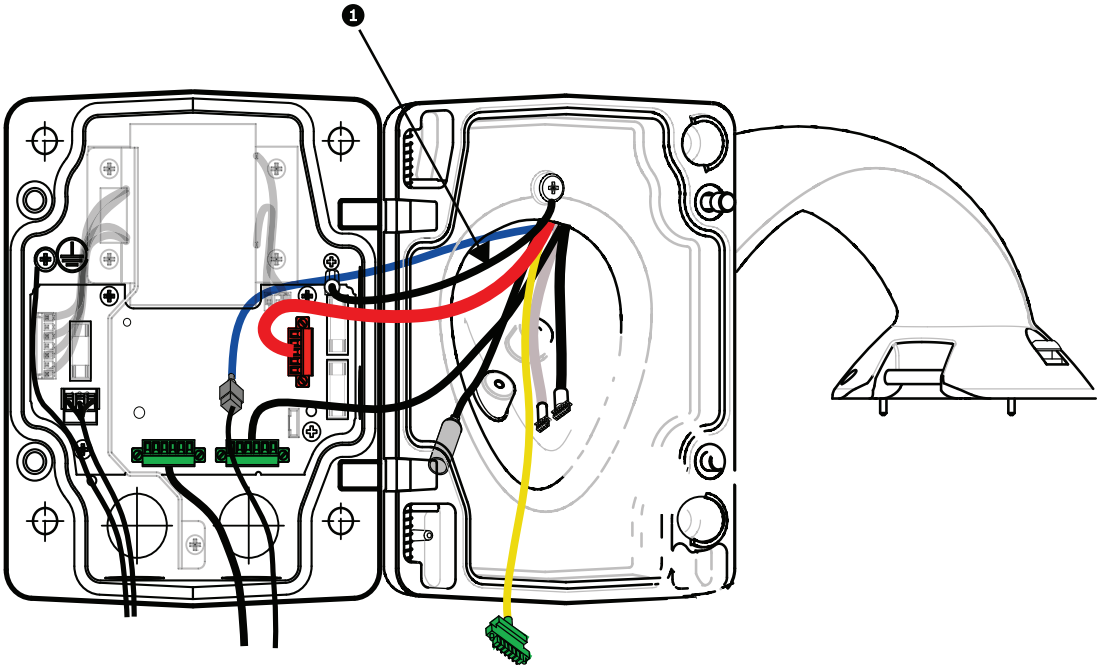


Figure 8.8: Pendant Arm connections to Power Supply Box

1. Attach the earth ground wire (item 1 in the illustration above) to the grounding screw on the left side of the power box.
2. Connect the 6-pin Control In/Out Plug, installed previously, to its mating connector P106 in the power box.
3. Connect the 6-pin Control to Dome Plug from the Pendant Connector Harness to its mating connector P105 in the power box.
4. Connect the 5-pin, 24 VAC to Dome Plug from the Pendant Connector Harness to its corresponding color mating connector P107 on the right side of the box.
5. To connect alarm inputs and relay outputs, connect the 4-pin Alarms Out, the 6-pin Alarms In, and the 7-pin Relay connectors from the Pendant Connector Harness to their mating connectors, installed previously, to the incoming alarm wires.
6. Connect the 3-pin Power In Plug, installed previously, to its mating connector P101 on the left side of the box.
7. Connect the incoming RJ45 video connector, installed previously, to its mating connector from the Pendant Connector Harness.
8. Attach the grounding strap of the Pendant Arm to the Power Supply Box.
9. After making the harness connections to the Power Supply Box, rotate the Pendant Arm to close and seal the Power Supply Box and tighten the two (2) captive screws to 10-12 N-m (90-105 in.-lbs).
10. Refer to *Attach Pendant to Arm and Tighten, page 38* to continue the installation procedure.

Notice!

After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs) to ensure the Power Supply Box is watertight.

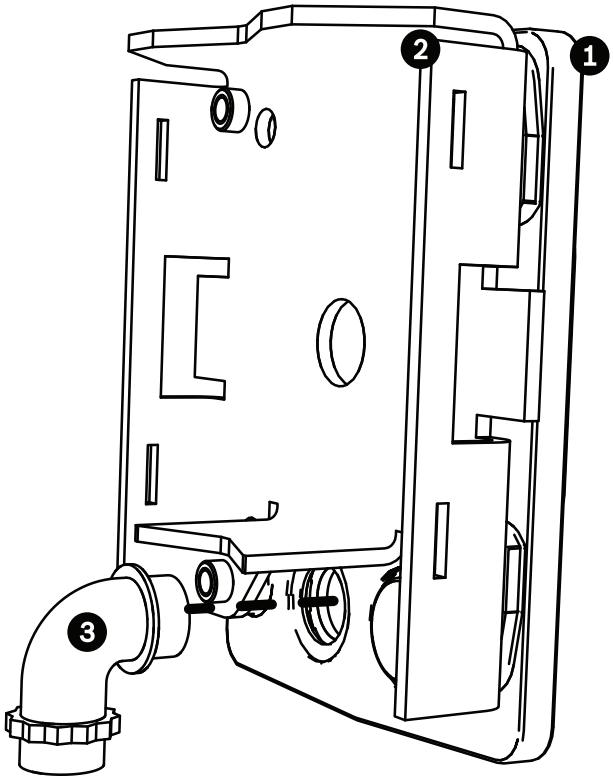
7.6 Installing the VGA-PEND-WPLATE

This section provides instructions to install a wall, corner, or mast mount with the VGA-PEND-WPLATE Mounting Plate instead of a Power Supply Box.

Caution!
You must route the main power supply through a 120/230 VAC transformer (VG4-PSU1 or VG4-PSU2 power supply box) before connecting the power to a 24 VAC AUTODOME camera.

Warning!
A stud diameter of 6.4 mm (1/4 inch) to 8 mm (5/16 inch) able to withstand a 120 kg (265 lb) pull-out force is recommended. The mounting material must be able to withstand this pull out force. For example, 19-mm (3/4-inch) minimum for plywood.

1. **For a Corner installation:**
   Secure the Corner Plate to the wall corner using four (4) studs (not included).
   Secure the Mounting Plate to the Corner Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).
2. **For a Mast or pole installation**:
   The metal straps included with the Mast mount accommodate a pole with a diameter of 100–380 mm (4–15 in.). You must use a banding tool (sold separately) for a mast or pole installation. In addition, you must obtain a 3/4 in. (20-mm) right angle conduit connector through which you route the wires that connect to the pendent arm.
   Follow the instructions provided with the banding tool to securely mount the Mast Plate to the pole. Contact your Bosch Sales Representative to order Banding Tool P/N TC9311PM3T.
   Secure the Mounting Plate to the Mast Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).
   Remove one of the rubber gaskets from the Mounting Plate.
   Once the Mounting Plate (item 1, below) is attached to the Mast Plate (item 2), connect the right angle conduit (item 3) to the Mounting Plate through the empty conduit hole as shown below:



3. Ensure that the mounting plate is secure.

Attach the Pendant Arm to the Mounting Plate

The bottom hinge pin of the Pendant Arm is provided with a Hinge Pin Stop to hold the hinge open while attaching the arm to the Mounting Plate.

1. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the Hinge Pin Stop.

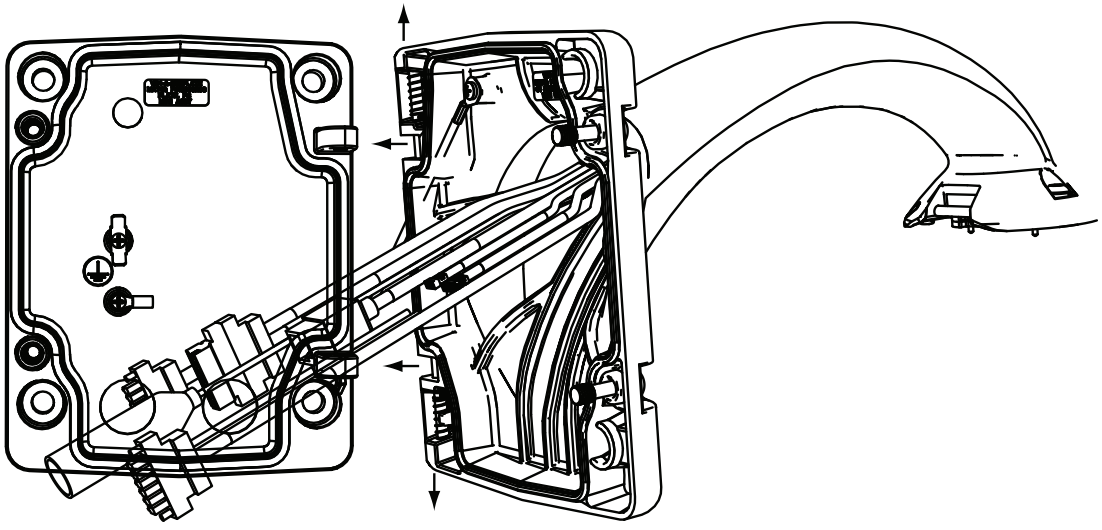


Figure 8.9: Connect Pendant Arm to Mounting Plate

2. Open the top hinge by pushing its pin lever up and holding it.
   Note: Both Hinge Pins must be fully compressed to open (unlock) the hinges of the Pendant Arm and before proceeding to the next step.
3. While continuing to hold the top hinge pin open, align the top and bottom hinges of the Pendant Arm to their mating points on the Mounting Plate.

4. Once you have the hinges aligned, release the top hinge pin to engage its mating hinge on the Mounting Plate. Then release the bottom hinge pin from the Hinge Pin Stop to lock the Pendant Arm to the Mounting Plate.

Route and Connect Wires to a Power Supply Box

The illustration below depicts the power and control cables connected to the Pendant Arm:

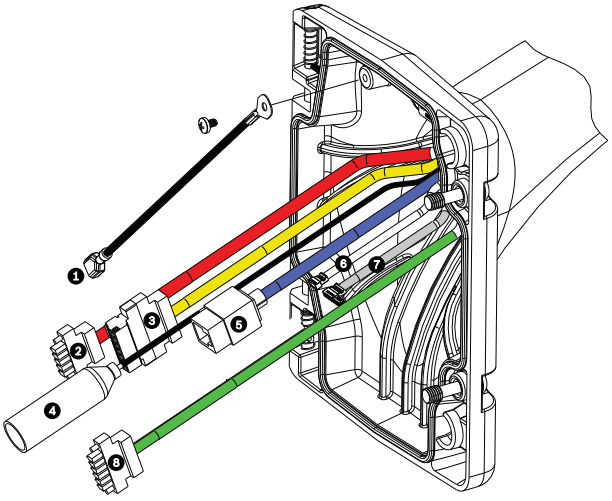


Figure 8.10: Pendant Arm Cables

	Cable		Cable
1	Grounding Strap (black)	5	UTP Video/Ethernet (blue)
2	24 VAC Power (red)	6	Alarm Outputs (white)
3	Relay Contacts (yellow)	7	Alarm Inputs (gray)
4	Coax Video (black) (Not applicable for AUTODOME 7000 Series cameras)	8	Serial Communications (green) Used for Audio Input/Output in AUTODOME 7000 Series.

Notice!

Refer to the *Connection, page 71* chapter for wire specifications and distances.

1. Route all incoming wires through one of the earth-grounded conduits at the bottom of the Mounting Plate. For a mast mount, route all wires through the right-angle conduit.
2. Attach the water-tight plug to the other conduit.
3. Attach the grounding spade terminal (item 1, below) to one of the spade terminals inside the Mounting Plate.

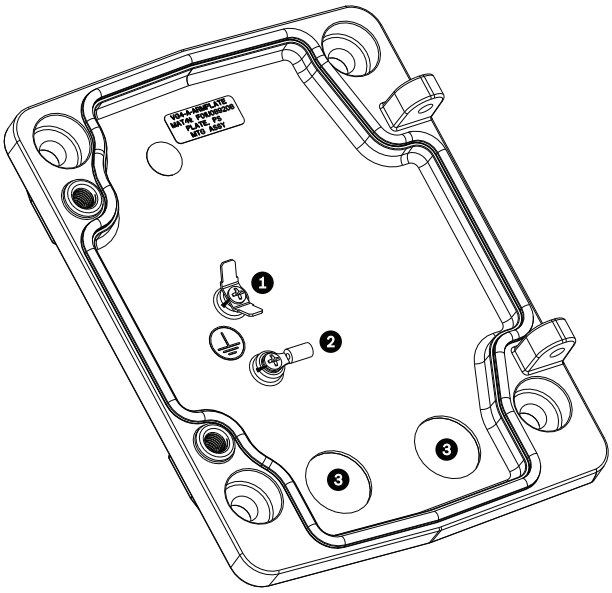
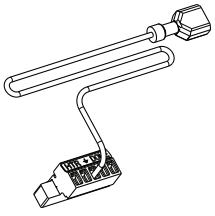


Figure 8.11: Mounting Plate - Inside Detail

Ref.	Description
1	Grounding lug with two spade terminals
2	Earth ground lug with crimp ring terminal
3	Wire input conduit holes

4. Connect the incoming 24 VAC power wires to the 5-pin, 24 VAC Power In mating connector (supplied with the Mounting Plate kit) for the camera and for the Heater.



5. Attach the grounding spade from the 5-pin mating connector to the other spade terminal inside the mounting plate.
6. Attach the 5-pin Power In mating connector to the 24 VAC Power cable (cable 2) connected to the pendant.
7. Remove the mating connector from the Relay Contacts cable (cable 3).
8. Connect the incoming relay contact wires to the mating connector. Then, reattach the mating connector to the Relay Contacts cable.
9. Attach an RJ45 plug to the incoming UTP cable.
10. Connect the incoming RJ45 video connector, installed previously, to the UTP Video/ Ethernet cable (cable 5).
11. Connect the outgoing alarm wires to the flying leads coming from the 4-pin Alarm Outputs cable (cable 6).
12. Connect the incoming alarms wires to the flying leads coming from the 6-pin Alarm Inputs cable (cable 7).
13. Connect the incoming serial communication wires to the 6-pin mating connector supplied with the VGA-PEND-WPLATE kit. Refer to the Power Supply Box Connections table above for details.

14. Attach the 6-pin serial communication mating connector to the Serial Communications cable (cable 8).
15. Connect the Earth ground wire, if available, to the crimp ring terminal inside the Mounting Plate.
    Note: The Earth ground is not provided with the VGA-PEND-WPLATE kit; it is a ground connection made at the installed location.
16. After making the harness connections to the Mounting Plate, rotate the Pendant Arm to close and tighten the two (2) captive screws to 10-12 N-m (90-105 in.-lbs).

Notice!
After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs).

7.7 Attach Pendant to Arm and Tighten

Notice!
Before attaching the AUTODOME Pendant, visually inspect the dome and arm connectors for any blocked pin holes or bent pins.

1. Tilt the bottom of the dome toward the pendant arm base and place the mounting hook, located on top of the dome housing, over the recessed hinge pin of the arm.

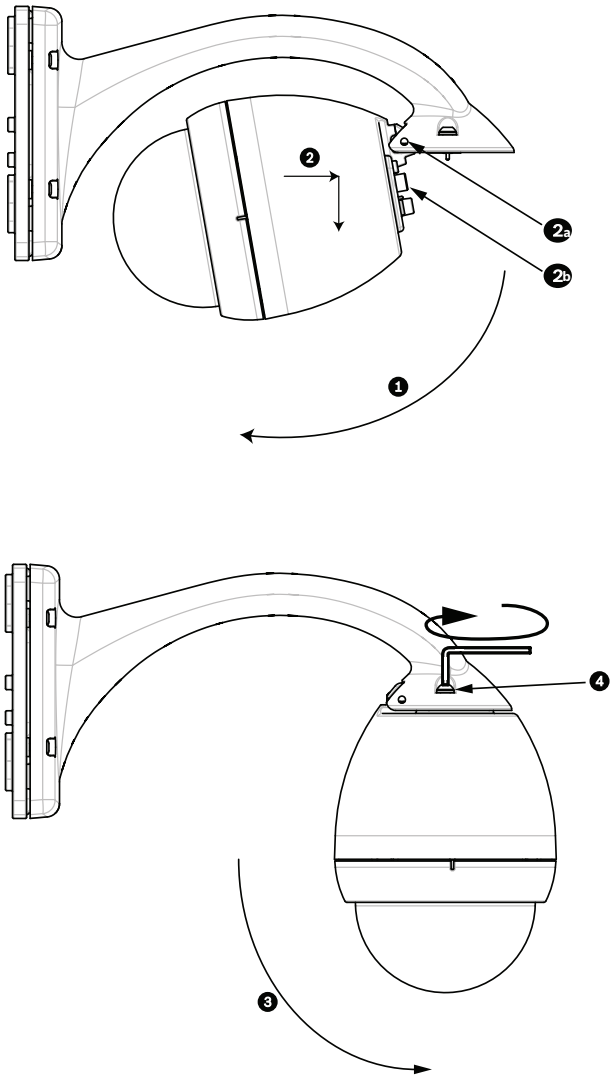


Figure 8.12: Attach Pendant to Arm

1	Tilt up.
2	Hook and drop.
2a	Recessed Hinge Pin
2b	Dome Connector
3	Rotate down to engage dome connector.
4	Tighten the two (2) mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs).

2. Drop the dome housing down slightly to engage the dome housing hook on the Pendant Arm hinge pin, allowing the dome to rotate around the pin.
3. Rotate the dome housing down to a vertical position and gently push upward to engage the connector on top of the dome housing.

Caution!
If you feel any resistance when rotating the dome housing or when engaging the connector, stop immediately and start over.

4. Hold the Pendant housing in position while tightening the two (2) 5-mm Allen head mounting screws on top of the housing to **10-12 N-m (90-105 in.-lbs)**.

Caution!
You must tighten the two mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs) to ensure a proper seal between the arm and the housing.

8 Installing the Roof Parapet and Pipe Mounts

8.1 Description

This chapter details how to install an AUTODOME camera to a Roof Parapet or to a Pipe mount. Any differences to the installation between these two mounting systems are noted.
The VGA-ROOF-MOUNT is a stationary mount intended for rooftop parapet vertical walls. It is made of light weight aluminum with a corrosion-resistant finish and is used for all Bosch AUTODOME cameras up to a rated load of 29 kg (64 lb). This mount can be fitted to the inside or outside of parapet walls and can swivel for ease of positioning and for servicing the camera. Note that customers must purchase separately the VG4-A-9543 Pipe Mount to use on the end of the VGA-ROOF-MOUNT.
The end of the Pipe Mount that is meant to terminate into an enclosure is intended to be field-installed and shall be marked or provided with instructions that identify the equipment necessary to maintain the environmental integrity of the enclosure. In order to maintain the integrity of a Type 4X environment, the connected equipment must have a Type 4X environmental rating. In order to maintain the integrity of a Type 4 environment, the connected equipment must have a Type 4, Type 4X, Type 6, or Type 6P environmental rating.

8.2 Route Wires and Attach Connectors

Power wires must be routed to the left (front) side of the Power Supply Box through a separate electrically earth-grounded conduit. All video, control, and alarm wires must be routed through a second electrically earth-grounded conduit to the right side of the box.

Warning!
External interconnecting cables are to be installed in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.
Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm (0.12 in.) must be incorporated.

There are two possible methods to route the video, control, and alarm wires:
Method One is to route the video, control, and alarm wires through the conduit fitting on the right (front) side of the Power Supply Box and out to the AUTODOME Interface Board.

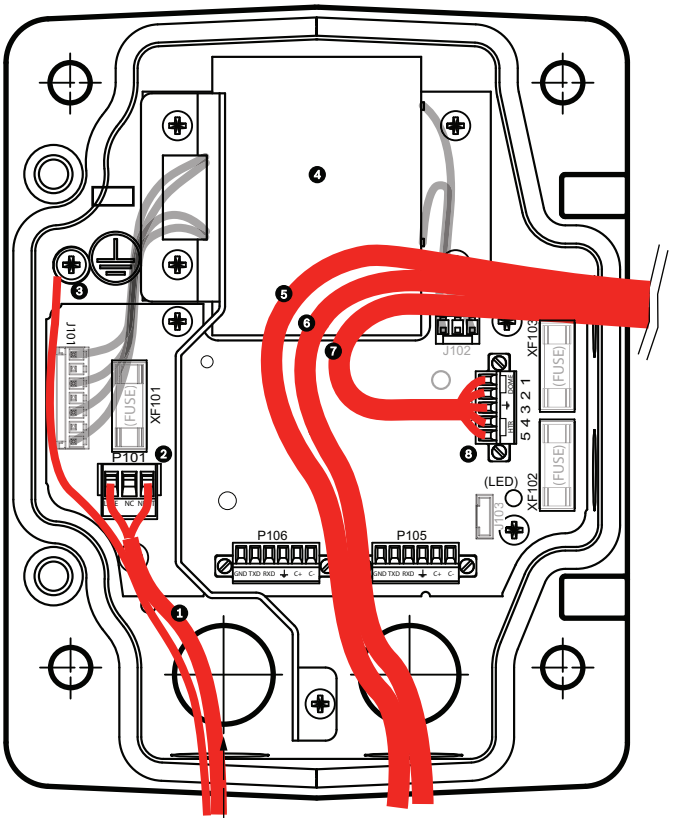


Figure 9.1: VG4-A-PSU1 or VG4-A-PSU2 Power Supply Box

1	120 VAC/230 VAC Power In	6	Control Wire Used for Audio input and output in AUTODOME 7000 Series.
2	P101 Connector	7	24 VAC Power Out
3	Ground Connection	8	P107 Connector
4	Transformer	9	Earth-grounded conduit with power input and earth-ground connection
5	Ethernet Wire	10	Earth-grounded conduit with Ethernet video/control, audio input and output to “head-end“ system
		11	Earth-grounded conduit to camera

Method Two is to bypass the Power Supply Box and route the video, control, and alarm wires directly to the Interface Board. You connect only the power wires inside the Power Supply Box. All conduit and junction boxes used must be electrically earth-grounded.

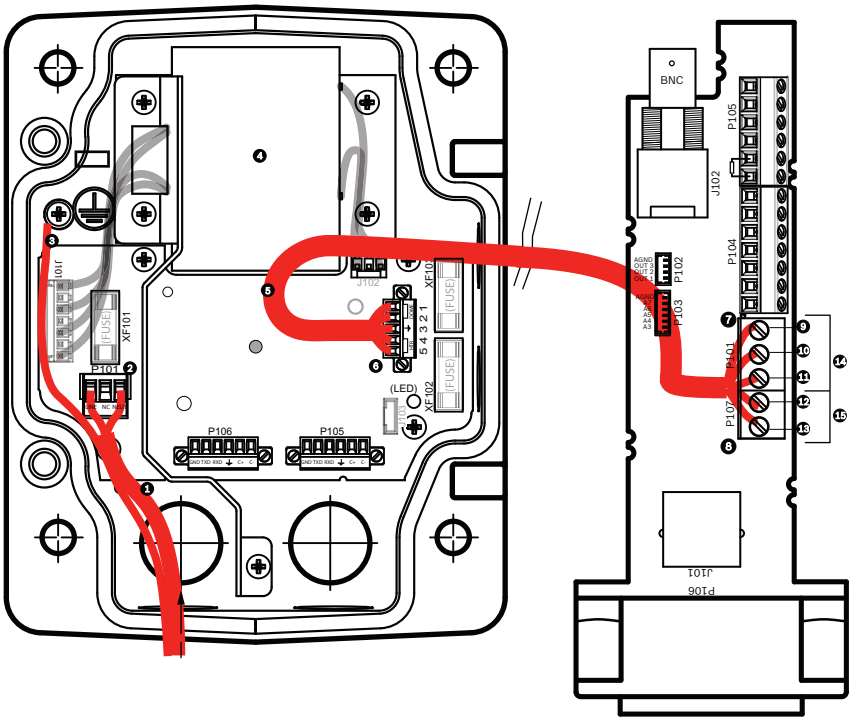


Figure 9.2: VG4-A-PSU1 or VG4-A-PSU2 Power Supply Box Connected to Pipe Interface Board

	VG4-A-PSU1/VG4-A-PSU2		Pipe Interface Board
1	120 VAC/230 VAC Power In	7	P101 Connector
2	P101 Connector	8	P107 Connector
3	Ground Connection	9	24 VAC Power In (to camera)
4	Transformer	10	Earth Ground
5	24 VAC Power Out	11	24 VAC Power In (to camera)
6	P107 Connector	12	24 VAC Power In (to Heater)
		13	24 VAC Power In (to Heater)
		14	Camera Power
		15	Heater Power

Wiring the Power Supply Box

Notice!
Refer to the *Connection, page 71* chapter for wire specifications and distances.

- Route the high voltage 115/230 VAC lines through the earth-grounded conduit fitting on the left side of the box.

Notice!
The Power Supply Box with transformer comes with a barrier that separates the high voltage side on the left from the low voltage 24 VAC side on the right.

1. Cut and trim the high voltage 115/230 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the Cover Door.
2. Attach the supplied 3-pin Power Plug to the incoming high voltage power wires in the box. Refer to connector P101 in the Power Supply Box Connections section below.
3. Route the Ethernet cable out to where the camera will be mounted.
4. Route the low power 24 VAC wires from the right side of the Power Supply Box out to where the camera will be mounted. Attach the supplied 5-pin 24 VAC Dome plug to the wire ends inside the box. Refer to connector P107 in the Power Supply Box Connections section below.

Notice!
All video, control, and alarm wires either pass through the Power Supply Box or by-pass it and connect directly to the Pipe Interface Board.

Wiring the Fiber Optic Model
If installing a Fiber Optic model, follow these steps:

Notice!
Refer to the *Connection, page 71* chapter for fiber optic specifications.
For instructions on installing a fiber optic module into a power supply box, see the *VG4 Fiber Optic Media Converter Installation Guide* that ships with the module.

1. Bring the fiber optic cable (item 3 in the figure below) into the right side of the power supply box.
2. Connect the fiber optic cable to the port for the SFP module (item 2 in the figure below).
3. Connect the RJ45 plug of the cable to the RJ45 socket (item 1 in the figure below) on the fiber optic module in the power supply box.
4. Route the control wires from the Power Supply to the Pipe Interface Board. Then attach the supplied six (6) pin control data connector to the wires in the Power Supply Box. Refer to *Wire the Pipe Interface Board, page 52*.

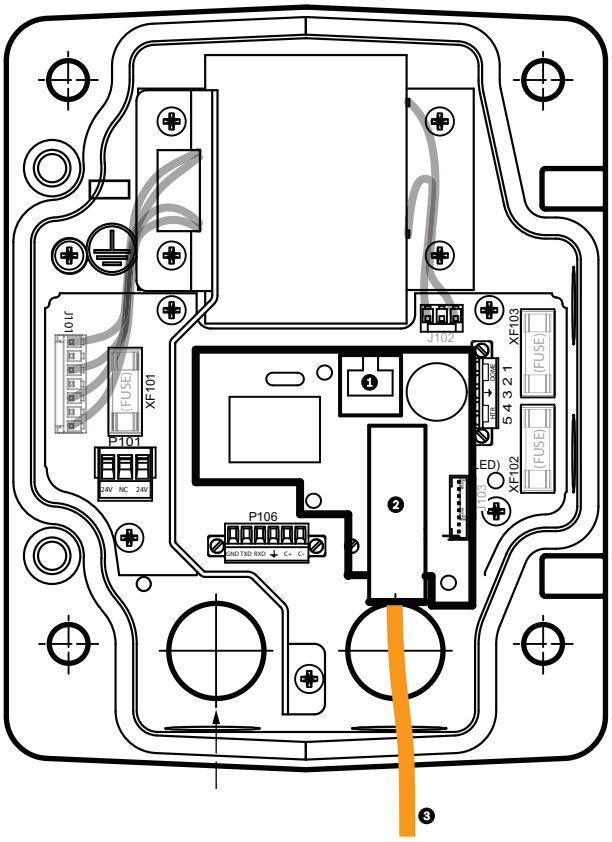


Figure 9.3: Fiber Optic Ethernet Module installed

1	RJ45 Ethernet socket
2	Port for SFP module (sold separately)
3	Fiber Optic cable (user-supplied)

Power Supply Box Connections

The following figure is a detailed illustration of the Roof or Pipe Mount Power Supply Box, which includes the fuse specifications.

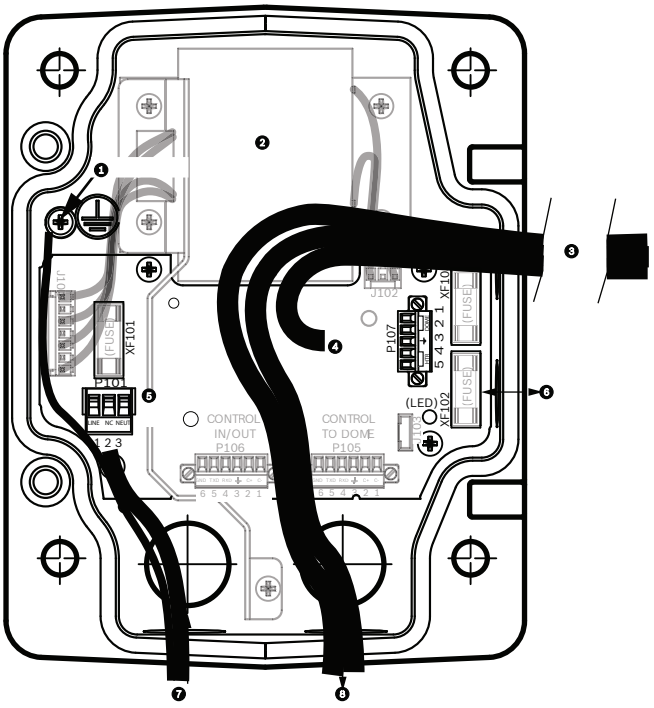


Figure 9.4: Power Supply Box Connections

1	Ground Screw	5	Power In
2	Transformer (115/230 VAC Modes)	6	In/Out; 1/2 in. (15 mm) NPS Fitting
3	In/Out to camera	7	Power In; 3/4 in. (20 mm) NPS Fitting
4	24 VAC to Dome Interface Board	8	Control Data and Video In/Out; 3/4 in. (20 mm) NPS Fitting

Warning!

Fuse replacement by qualified service personnel only. Replace with same type fuse.

Fuse Specifications			
Volts	**XF101 Mains**	**XF102 Camera**	**XF103 Heater**
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

The following table lists the Power Supply Box connectors:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	115/230 VAC or 24 VAC Power In	Line	NC	Neutral			
P107	24 VAC Power to Dome Plug	Dome 24 VAC	Dome 24 VAC	Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

Table 9.1: Power Box Connections

8.3 Attach Cover Door to Power Supply Box

1. Compress the bottom hinge pin by pushing the pin lever down and then rotate it behind the Hinge Pin Stop. The power box Cover Door provides a Hinge Pin Stop to hold the bottom hinge open while attaching the door.

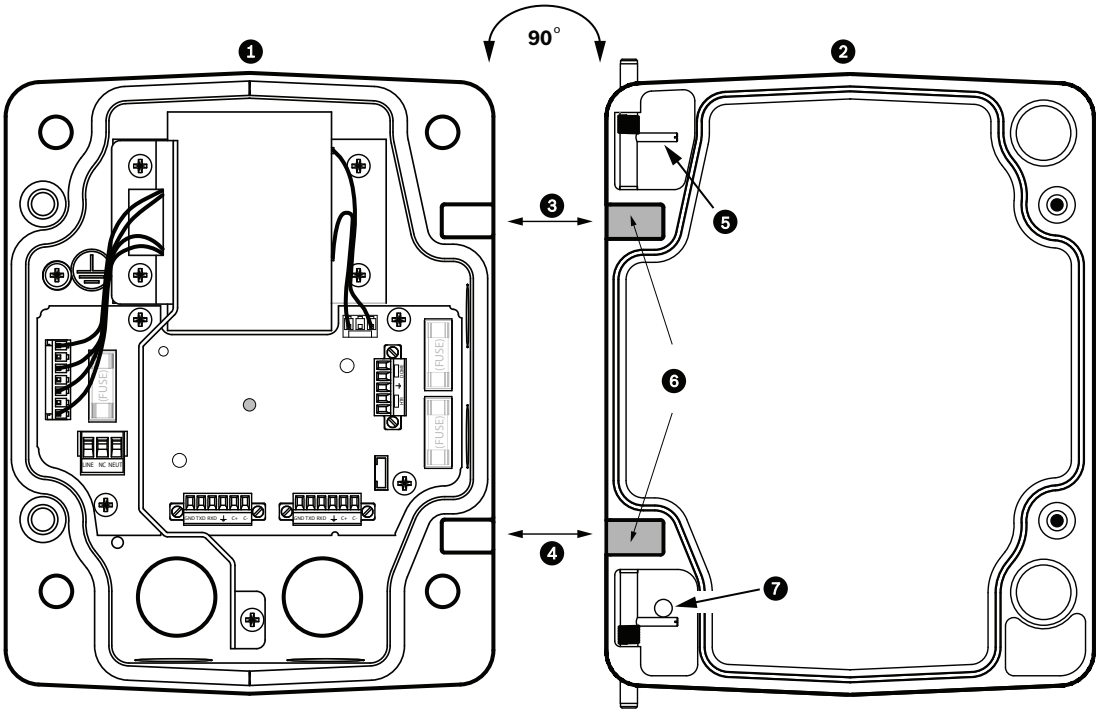


Figure 9.5: Align Cover Door Hinge to Power Box

1	Power Supply Box	5	Hold Hinge Pin Open
2	Cover Door	6	Open Position
3	Align Top Hinge	7	Hinge Pin Stop
4	Align Bottom Hinge		

2. Open the top hinge by pushing its pin lever outward and holding it open.
   Note: Both Hinge Pins must be fully compressed to open (unlock) the female hinges of the Cover Door before proceeding to the next step.
3. While holding the top hinge pin open, position the Cover Door to the Power Supply Box and align its hinges.

4. When the hinges are aligned, release the top hinge pin to engage its mating hinge on the power box. Then release the bottom hinge pin from the Hinge Pin Stop to complete attaching the Cover Door to the Power Supply Box.

Notice!
After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs) to ensure the Power Supply Box is watertight.

8.4 Installing the VGA-ROOF-MOUNT

This section details the installation steps for the Roof Parapet Mount. If you are installing a pipe mount, refer to *Installing the VG4-A-9543 Pipe Mount, page 50* for instructions.

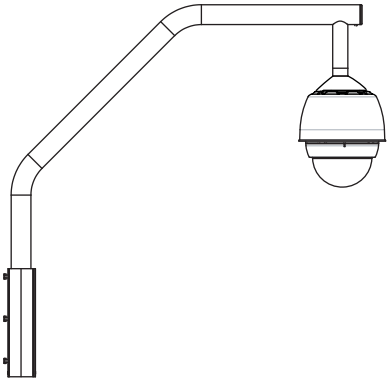


Figure 9.6: VGA-ROOF-MOUNT

1. Determine the wall location on the roof for the camera and use the Parapet wall mount bracket as a template to mark the hole locations.

Notice!
Allow enough room below the Parapet Mount Bracket to route the video, control and alarm wires up through the Parapet arm. In certain installations you may have to lift the Parapet arm for the camera to clear the top of the wall when it is swung into position. Provide enough slack in the wires to rotate the pipe arm over the roof and back when camera maintenance is required.

2. Prepare the mounting surface for the type of fastener by drilling holes for the mounting anchors as required.

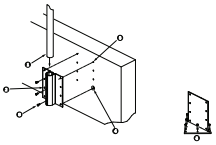


Figure 9.7: Parapet Wall Mount Bracket and Roof Mount Plate

1	Pipearm	4	Apply sealant around each fastener hole
2	Parapet Wall Bracket	5	Roof Mount Plate
3	3/8-16 SS Hex Head Bolt (supplied)	6	Use a minimum of six (6) fasteners (not supplied). Eight (8) fastener holes shown.

Notice!

Fasteners are not supplied with the Roof Parapet Mount Kit since it depends on the material to which it is attached. The material must accommodate a minimum pull out strength of 275 kg (600 lbs). For example, 19 mm (3/4 inch) minimum for plywood. Fasteners can include bolts, studs, or lag bolts. All fasteners must be made of corrosion-resistant stainless steel, with a diameter of 10 mm (3/8 inch).
All bolts must fully extend through the mounting surface and be secured with a flat washer, lock washer and a nut. All studs must be anchored to concrete or welded to a steel backing plate. Anchor bolts can be used for blind structures where there is no access to the rear.

3. Apply a weatherproof sealant around each fastener hole at the mounting surface.
4. Attach the Parapet Wall Bracket using at least six (6) stainless steel fasteners, three (3) on each side (the bracket has eight (8) holes). Be careful not to over tighten the fasteners because it may strip the threads. If attaching the parapet mount to a flat roof, attach the optional LTC 9230/01 Roof Mount Plate to the roof and then attach the Parapet Wall Bracket to the Roof Mount Plate.
5. Insert the Parapet Pipe Arm into the mounting bracket until it bottoms in the bracket.
6. Remove the End Cap from the front of the arm and feed the video, control, and power wires up through the bottom of the pipe arm and out the front end.

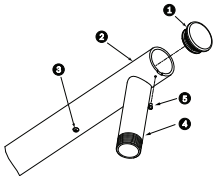


Figure 9.8: VGA-ROOF-MOUNT

1	End Cap with O-ring
2	Parapet Pipe Arm
3	1/4-20 SS Cap Screw
4	Down Pipe
5	10-24 SS Pan Head Screw

7. Fold the video, control, and power wires back at the front end of the arm and route them down and out through the Down Pipe. Then replace the End Cap.
8. Wrap at least five layers of Teflon tape around the Down Pipe threads.
9. Apply the supplied thread sealant to the Down Pipe threads:
   Make sure all surfaces are clean and dry.
   Apply a bead of sealant completely around the leading threads of the male fitting.
   Force the adhesive into the threads to thoroughly fill all voids.
10. Thread the Dome Cap onto the down pipe and tighten securely. See the illustration below.

Warning!

You must thread the Dome Cap onto the Down Pipe until it is tight. Failure to do so can result in damage, serious injury, or death.

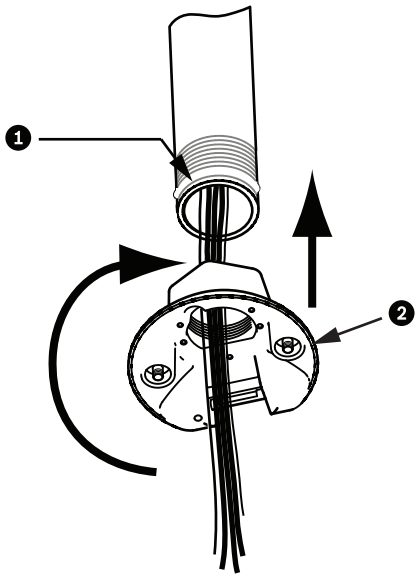


Figure 9.9: Attach Dome Cap

1	Thread Sealant or tape
2	Dome Cap

11. Run a bead of RTV Silicon sealant around the down pipe/Dome Cap interface to seal any gaps between the down pipe and the Dome Cap.
12. Proceed to *Wire the Pipe Interface Board, page 52*.

Notice!
Use a guy-wire to aid in stabilizing the Parapet Arm. Replace the 1/4 inch cap screw with a threaded 1/4-inch stainless steel eye bolt (not supplied). Loop the guy-wire through the eye bolt and attach both ends to anchor spots on the roof.

8.5 Installing the VG4-A-9543 Pipe Mount

This section details the installation steps for the VG4-A-9543 Pipe Mount. If you are installing the Roof Parapet mount, refer to *Installing the VGA-ROOF-MOUNT, page 48* for instructions.

Notice!
Customer must supply 1-1/2 inch (NPS) pipe threaded on both ends with a minimum length of 5 inches (12.7 cm).
You must use Teflon tape for thread-sealing compound.
All screws shall be tightened securely.

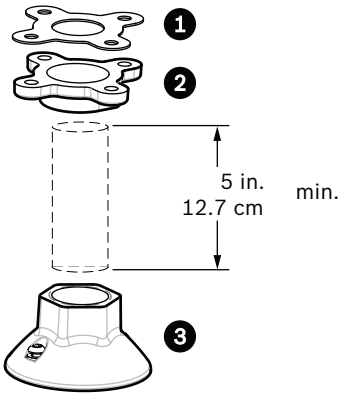


Figure 9.10: Pipe Mount

1	Gasket
2	Flange
3	Cap

1. Before installing the Top-Mounting Flange, ensure there is an adequate opening in the ceiling or mounting structure for the wires to pass through.
2. Secure the pipe Flange with supplied gasket to the ceiling or other supporting structure using four (4) 10-mm (3/8-inch) diameter fasteners.

Notice!
Each fastener must have a minimum pullout strength of 275 kg (600 lbs). The mounting material must be able to withstand this pull-out force. For example, 19-mm (3/4-inch) minimum for plywood.

3. Attach pipe (not supplied) to the Top-mounting Flange.

Warning!
You must thread the pipe onto the Top-mounting Flange until it is tight. Failure to do so can result in damage, serious injury or death.

4. Route the power, video, control, and alarm wires through the Top-Mounting Flange and down the pipe.
5. Wrap at least five layers of Teflon tape around the threads.
6. Apply the supplied thread sealant to the threads on the Pipe.
   Make sure all surfaces are clean and dry.
   Apply a bead of sealant completely around the leading threads of the male fitting.
   Force the adhesive into the threads to thoroughly fill all voids.
7. Thread the Pipe Cap onto the down pipe and tighten securely to prevent leaks.

Warning!
You must thread the Dome Cap onto the pipe until it is tight. Failure to do so can result in damage or serious injury or death.

8.6 Wire the Pipe Interface Board

This section provides instructions for connecting wires and cables to the Pipe Interface Board, as illustrated below. Refer to the *Connection, page 71* chapter for cable and wiring recommendations and specifications.

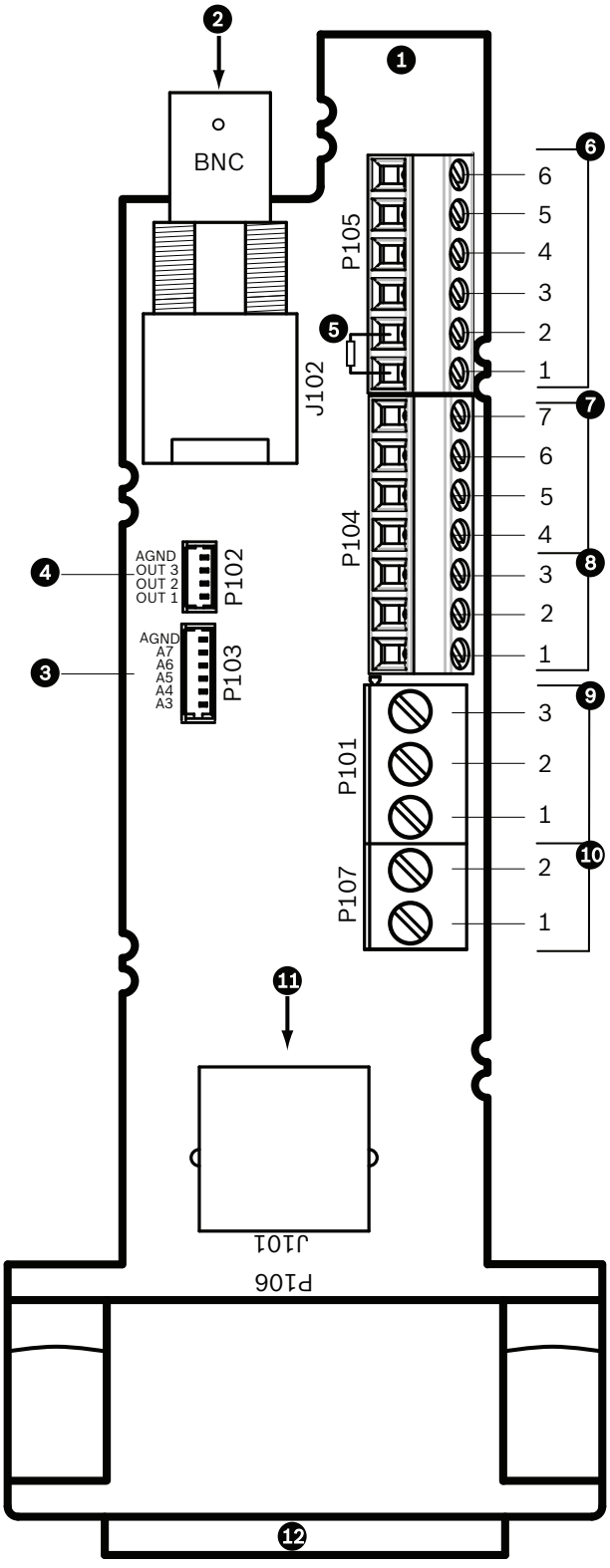


Figure 9.11: Pipe Interface Board Connections

1	Pipe Interface Module				
2	Video Coax In	J102			

3	6-pin Connector Alarms In (3-7)	P103			
4	4-pin Connector Alarms Out (1-3)	P102			
5	100 Ω Resistor Note: When using the audio input in an AUTODOME 7000 Series camera, remove this resistor.	P105			
6	Data In/Out	P105	AWG 26-16	1	Biphase (C-) For AUTODOME 7000 Series: AUDIO IN – (Audio in signal ground)
				2	Biphase (C+) For AUTODOME 7000 Series: AUDIO IN +
				3	Earth Ground
				4	RxD + For AUTODOME 7000 Series: AUDIO OUT +
				5	TxD – For AUTODOME 7000 Series: AUDIO OUT – (Audio out signal ground)
				6	Signal Ground
7	Alarms In (EOLR Supervised, 1-2)	P104	AWG 26-16	7	Ground
				6	Alarm 2
				5	Alarm 1
				4	Earth Ground
8	Relay Output	P104	AWG 26-16	3	Normally Closed
				2	Common
				1	Normally Open
9	Dome Power	P101	AWG 18-14	3	Dome 24 VAC
				2	Earth Ground
				1	Dome 24 VAC
10	Heater Power	P107	AWG 18-14	2	Heater 24 VAC
				1	Heater 24 VAC
11	RJ45 Ethernet	J101			
12	To camera				

The Pipe Interface Board contains all of the connectors for control, data, image, and power wires. Follow the procedures below to make the proper connections.

Warning!
Use a 24 VAC Class 2 power supply only.

1. Attach an RJ45 connector plug to the Ethernet cable and connect the plug to its mating connector J101 on the Pipe Interface Board.
2. Attach the control data in/out wires to their respective terminals on the P105 connector on the Pipe Interface Board.
3. Connect the 24 VAC power wires to the P101 connector on the Pipe Interface Board. If this model has a heater, connect the 24 VAC heater power wires to connector P107.

Caution!
To protect the camera from damage due to cold temperatures, ensure that you connect the 24 VAC heater power wires to the P101 connector.

Connecting Alarm Inputs and Outputs

- To connect alarm inputs and outputs, attach the supplied 6-pin Alarms In and the 4-pin Alarms Out connector plugs with flying lead wires to the appropriate incoming alarm wires. Alarm Out 4 is a relay.

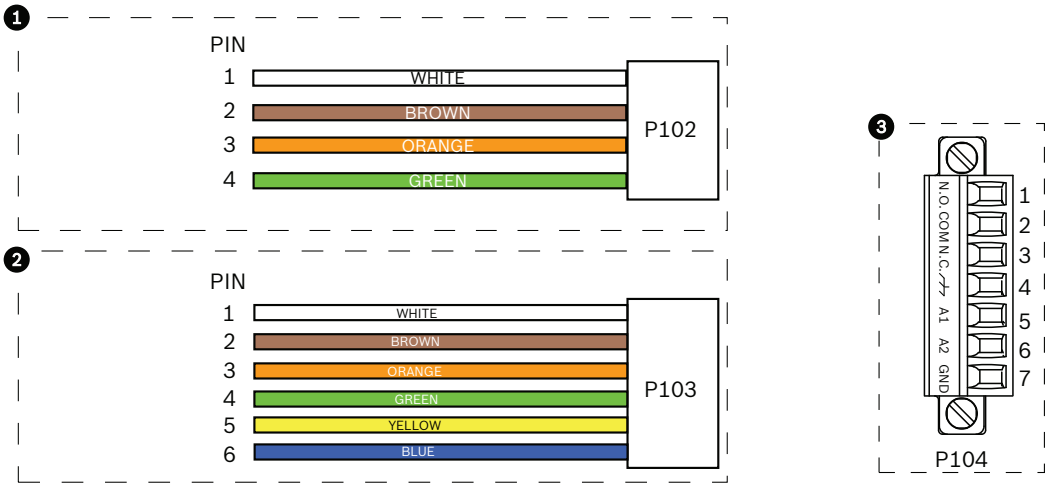


Figure 9.12: Alarm and relay connectors

1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm in 3	1	Alarm Out 4 Normally Open
2	Alarm Out 2	2	Alarm in 4	2	Alarm Out 4 COM
3	Alarm Out 3	3	Alarm in 5	3	Alarm Out 4 Normally Closed
4	Alarm Ground	4	Alarm in 6	4	Earth Ground
		5	Alarm in 7	5	Analog Alarm 1
		6	Alarm Ground	6	Analog Alarm 2

			7	Ground
For in-ceiling mount only: Low Voltage TTL (3.3V) can also be used.				

- Connect the plugs to their mating connectors P103 and P102 on the Pipe Interface Board.

1. To connect supervised alarms and relays, attach the appropriate wires to their terminals on the P104 connector on the Pipe Interface Board (see above).
2. Insert the Pipe Interface Board into the down pipe and fasten the three (3) retaining screws to secure the board to the Dome Cap.

Caution!
Be careful not to strip the threads when tightening the Pipe Interface Board retaining screws.

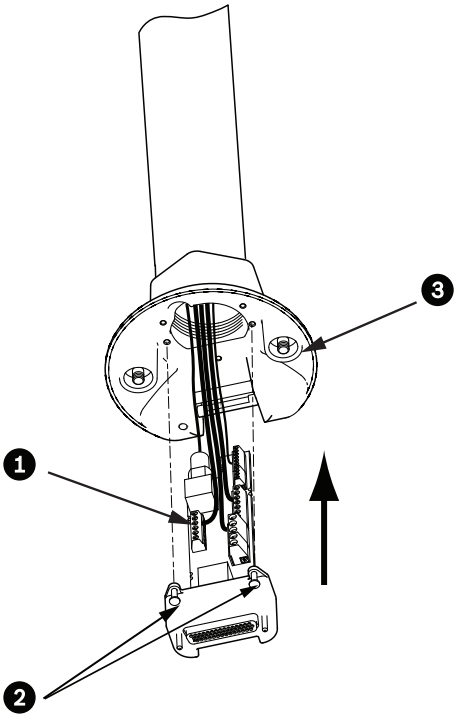


Figure 9.13: Pipe Interface Board to Dome Cap Assembly

1	Interface Board
2	Retaining Screws (3)
3	Pendant Mounting Screws (2)

8.7 Attach Pendant to Pipe and Tighten

1. Before attaching the Pendant, visually inspect the Pendant dome and the Interface Board connectors for any blocked pin holes and bent pins.
2. Tilt the Pendant enough to place its mounting hook on top of the its housing, over the recessed hinge pin of the Dome Cap.

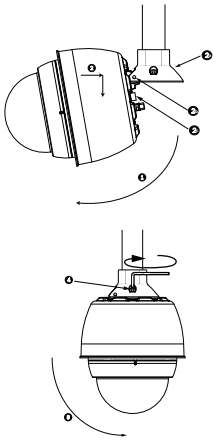


Figure 9.14: Pendant to Roof / Pipe Mount Attachment

1	Tilt Dome
2	Hook and drop
2a	Dome Cap
2b	Recessed Hinge Pin
2c	Dome Connector
3	Rotate down to engage dome connector
4	Tighten the two (2) mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs)

3. Drop the Pendant down slightly to engage the dome hook and hinge pin of the Dome Cap, allowing the dome to rotate around the hinge pin.
4. Rotate the dome housing down to a vertical position and gently push upward to engage the connector on top of the dome housing.

Caution!
If you feel any resistance when rotating the dome housing or when engaging the connector, stop immediately and start over.

5. Hold the housing firmly in position and alternately tighten the two (2) 5-mm Allen head mounting screws from above to a torque value of 10-12 N-m (90-105 in.-lbs).

Caution!
You must tighten the two mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs) to ensure a proper seal between the arm and the housing.

6. Rotate the arm to swing the camera out from the roof and into position, if installing a Parapet Roof Mount.
7. Tighten the three (3) 10-mm (3/8-inch) stainless steel hex bolts on the bracket to lock the Parapet Arm in position.

Caution!
Do not over tighten the bolts. The maximum torque is 34 N-m (25 ft-lb).

8.8 Make Connections in the Power Supply Box

1. Attach the earth ground wire to the grounding screw on the left side of the box.
2. Connect the 24 VAC to Dome plug, installed previously, to its mating connector P107 on the right side of the box.
3. Connect the 115/230 VAC, 3-pin Power-in plug, installed previously, to its mating connector P101 on the left side of the box.

9 Installing the In-Ceiling Mount

9.1 Description

This chapter details how to install the camera in an In-Ceiling Mount. The In-Ceiling AUTODOME camera is suitable for use in environmental air spaces. Refer to *Installing the Pendant Arm Wall, Corner, and Mast (Pole) Mounts, page 25*, or refer to *Installing the Roof Parapet and Pipe Mounts, page 41* for these specific installations.

9.2 Dimensions

9.3 Prepare Drywall Ceiling for Installation

1. Choose the desired location to mount the camera.
2. Use the bracket Base Plate as a template to cut a 7.1 in. hole with a tolerance of ±1/8 in. (180.34 mm ± 2.2 mm) in the ceiling with a drywall utility saw or Jig Saw. Proceed to *Wire the Interface Box, page 61*, for further instructions.

9.4 Prepare Suspension Ceiling for Installation

You must use the VGA-IC-SP In-ceiling Support Kit to install the camera In-ceiling housing into a suspended or drop ceiling. This kit requires a separate purchase.

1. Choose the desired location to mount the dome, and remove an adjacent ceiling tile.
2. Loosen the four (4) securing screws, located in the corners of the Bracket Assembly, enough to hold the suspension bars but still allowing adjustment during installation.
3. Place the Bracket Assembly over the ceiling tile, which is used to mount the camera. Then snap the Bar Clips of the bracket to the ceiling rails.

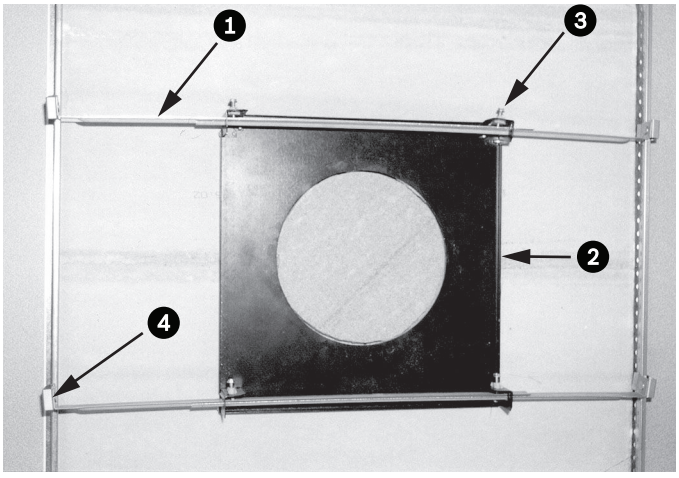


Figure 10.1: Suspension Ceiling Bracket (Top View)

1	Suspension Bars	3	Securing Screw (4)
2	Base Plate	4	Bar Clips

1. Use the bracket Base Plate as a template or cut a holesize hole in the center of the ceiling tile with a drywall utility saw or jig saw.

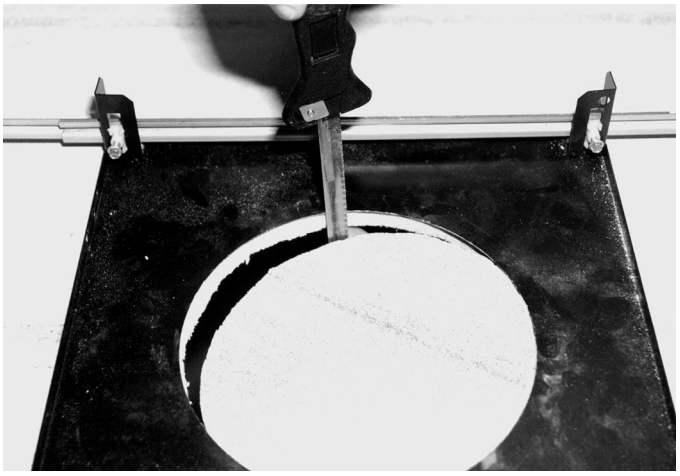


Figure 10.2: Cut Hole in Ceiling Tile

2. Tighten the four (4) securing screws to the Bracket Assembly.

Figure 10.3: Tighten Bracket Securing Screw

3. Secure the Bracket Assembly to an overhead securing point with a safety wire.

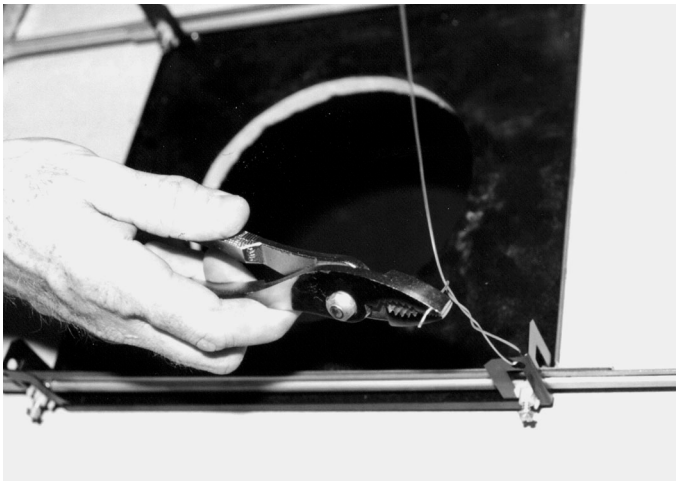


Figure 10.4: Secure Bracket Assembly

9.5 Wire the Interface Box

The Interface Box can be wired through the top or side. Use the supplied rubber plug to seal the hole which will not be used to route wires.

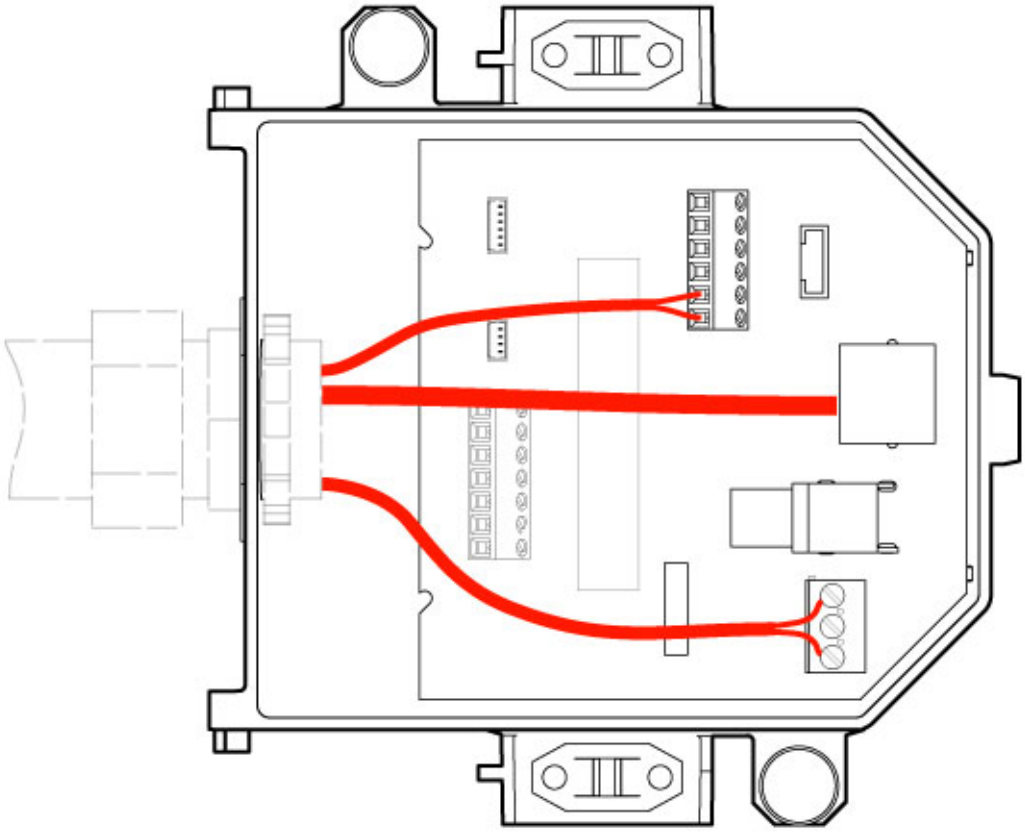


Figure 10.5: Interface Box Connections

After routing all video, control, power, and alarm wires:

1. Attach a 3/4-inch NPS (20-mm) conduit fitting to the hole in which you bring in the wires. Be sure to thread the inside nut to the conduit fitting.
2. Route the video, control, power, and alarm wires through the conduit fitting and into the Interface Box.
3. Cut and trim the wires allowing for sufficient slack to their respective terminals in the box.

Notice!

If installing the camera to a drywall ceiling, allow enough wire to make the connections in the Interface Box below the ceiling. Refer to the Wire the Interface Box section below.

4. Attach the remaining control data in/out wires to their respective terminals in the Interface Box.
5. Connect the Ethernet cable to its mating connector J101 in the Interface Box.
6. Connect the 24 VAC power wires to the P101 connector in the Interface Box.

Connecting Alarm Inputs and Outputs

- To connect alarm inputs and outputs, attach the supplied 6-pin Alarms In and the 4-pin Alarms Out connector plugs with flying lead wires to the appropriate incoming alarm wires. Alarm Out 4 is a relay.

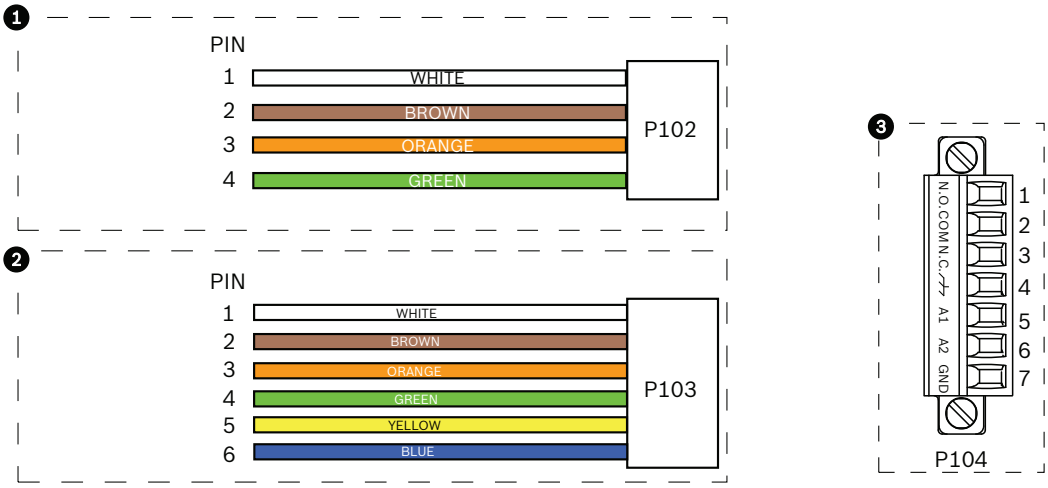


Figure 10.6: Alarm and relay connectors

1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm in 3	1	Alarm Out 4 Normally Open
2	Alarm Out 2	2	Alarm in 4	2	Alarm Out 4 COM
3	Alarm Out 3	3	Alarm in 5	3	Alarm Out 4 Normally Closed
4	Alarm Ground	4	Alarm in 6	4	Earth Ground
		5	Alarm in 7	5	Analog Alarm 1
		6	Alarm Ground	6	Analog Alarm 2
				7	Ground
For in-ceiling mount only: Low Voltage TTL (3.3V) can also be used.					

- ▸ Connect the plugs to their mating connectors P103 and P102 in the Interface Box.

1. To connect supervised alarms and relays, attach the appropriate wires to their terminals on the P104 connector on the Pipe Interface Board. Refer to the *Connection, page 71* chapter for more details on wiring alarms.
2. Attach the lid to the Interface box:
   Align the slots on the lid with the two posts at the rear of the Interface box.
   Rotate the lid down.
   Squeeze the ground clips, located at the front of the box, against the Interface box with your fingers before closing the lid to ensure that the lid does not catch on the ground clips.
   Secure the lid to the Interface box by pushing the lid down until the clip on the lid catches against the box.

9.6 Interface Box Connections

The following figure is a detailed illustration of the In-ceiling Interface box.

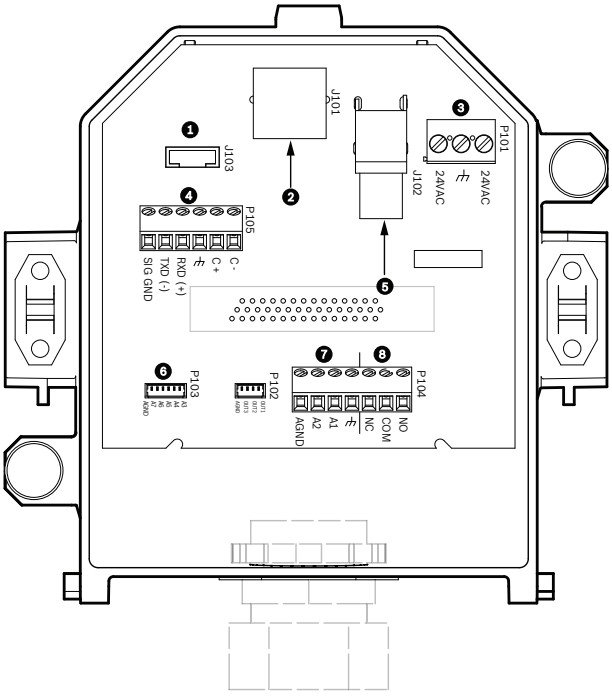


Figure 10.7: In-ceiling Interface Box

1	Fiber Optics	5	Coax Video [Not applicable for AUTODOME 7000 Series cameras.]
2	Ethernet Video	6	Alarm In
3	Dome Power	7	Analog In
4	Data In/Out	8	Relay

The following table summarizes the pin connectors and their function:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
P103	Alarms In	Alarm 3	Alarm 4	Alarm 5	Alarm 6	Alarm 7	AGND	
P102	Alarms Out	Alarm 1	Alarm 2	Alarm 3	GND			
P104	Analog Relay	Relay N.O.	Relay COM	Relay N.C.	Earth	Alarm 1	Alarm 2	Ground
P101	24 VAC	Line	Earth	Neutral				
P105	SERIAL COMMUNI-CATIONS	CODE- (Audio IN-, Audio in signal ground)	CODE+ (Audio IN+)	Earth GND (Ground) (Audio)	RXD (Audio OUT+)	TXD (Audio OUT-; Audio out signal ground)	Signal GND (Ground)	
J101	Ethernet	Connector Input						

Table 10.1: Interface Box Wire Terminals

Notice!
Pins for P105 1, 2, 4, and 5 are used for audio input and output for AUTODOME 7000 Series cameras; however, their labels are still those of previous versions of analog AUTODOME cameras.

Warning!
24 VAC Class 2 power supply only.

9.7 Installing the Ceiling (IP54 Housing) Gasket

In order to conform to the IP54 rating, you must install the ceiling gasket, illustrated (along with the other pieces that protect the camera and provide the IP54 rating) in the figure below. In addition, if you are using the optional black trim ring instead of the factory-installed white trim ring, the trim ring gasket must also be in place to provide the IP54 protection. (Refer to *Replace the trim ring (optional) (In-ceiling models), page 69* for step-by-step installation instructions.)

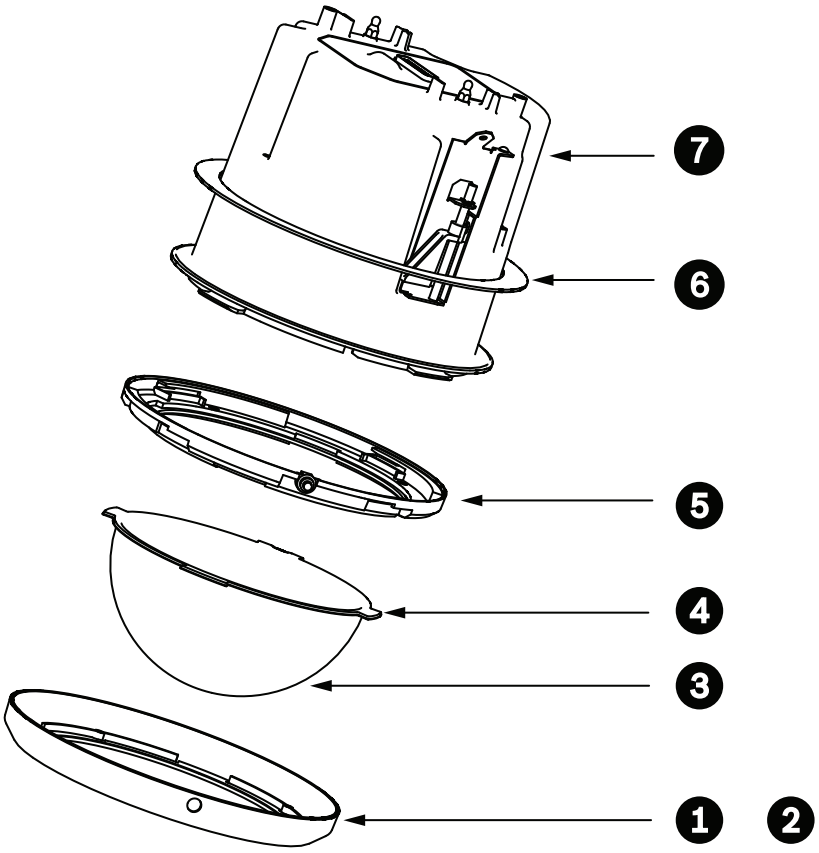


Figure 10.8: In-ceiling (IP54 Rating) Installation Diagram

1	White Trim Ring (factory-installed on dome bubble)	5	Inner Ring
2	Black Trim Ring (supplied in the shipping box of the camera)	6	Ceiling (IP54 housing) Gasket
3	Bubble	7	In-ceiling housing
4	Trim Ring Gasket		

1. Place the gasket (provided in the shipping box of the camera) over the top of the in-ceiling housing.
2. Carefully slide the gasket down over the housing, until it rests on the flange of the housing.

9.8 Attach Housing to the Interface Box

The In-Ceiling Housing is attached to the Interface Box and secured by two (2) thumbscrews.

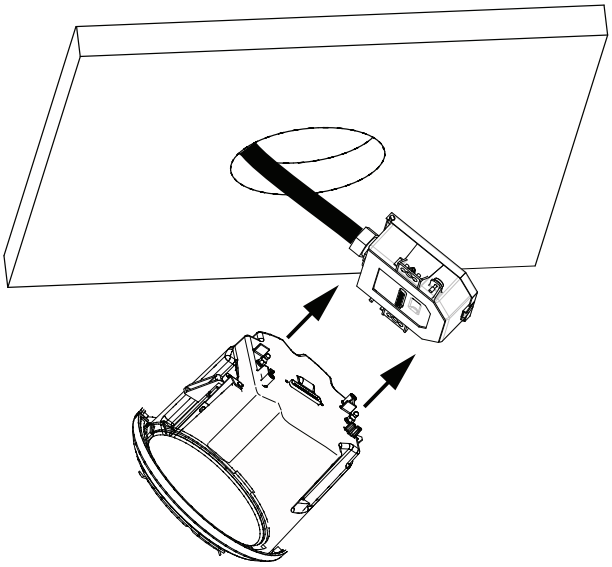


Figure 10.9: Attach Housing to Interface Box

1. Insert the In-ceiling housing through the hole in the ceiling to verify that the edge of the hole support the unit. Then remove the housing from the hole.
2. Align the ball studs of the In-Ceiling Housing to the Stud Retainers on Interface Box and attach.
3. Tighten the two (2) Thumbscrews to secure the Interface Box to the housing.

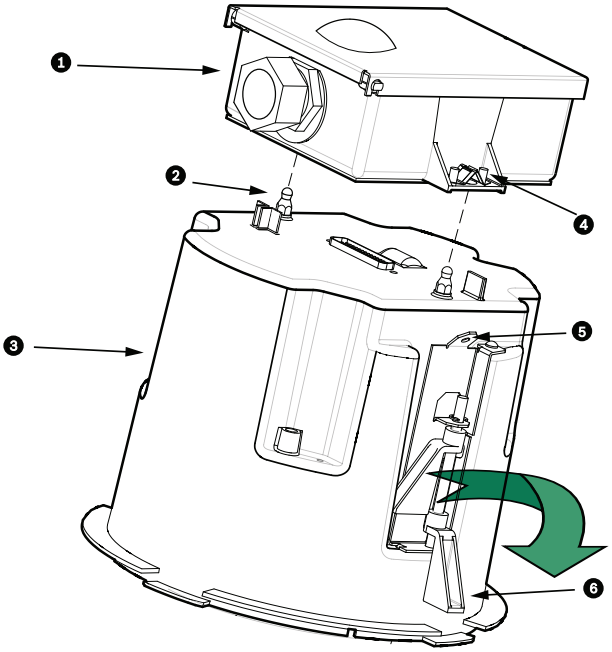


Figure 10.10: In-Ceiling Housing and Interface Box

1	Interface Box	4	Thumb Screw
2	Ball Stud	5	Tether Point
3	In-ceiling Housing	6	Ceiling Clamp

Caution!
The In-ceiling dome is provided with tether points on each side of the housing. To prevent injury, attach a safety wire from a secure anchor point above the ceiling to a tether point on the dome housing. See below for an illustration.

9.9 Secure Housing to Ceiling

The In-ceiling Housing is secured to the ceiling by two (2) screw clamps.

1. Insert the In-ceiling Mount Assembly through the hole in the ceiling.
2. Tighten both clamps using a #2 Phillips screwdriver, to secure the housing to the ceiling.

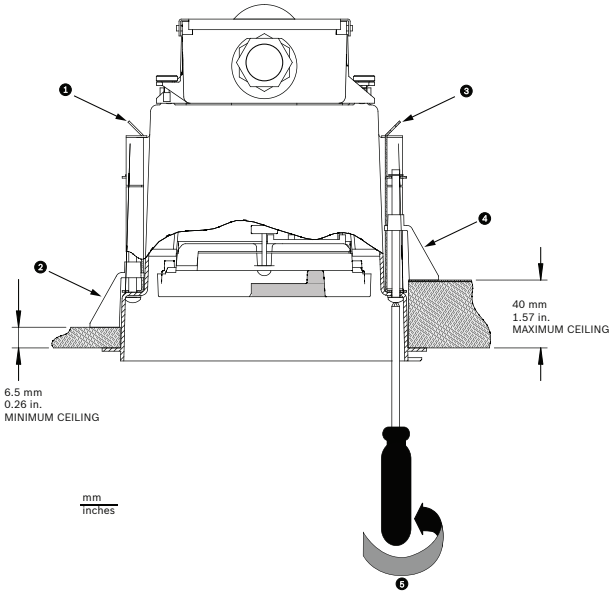


Figure 10.11: Secure camera to ceiling

1	Tether Point	4	Ceiling Clamp
2	Ceiling Clamp	5	Rotate Clockwise to Engage Clamp
3	Tether Point		

Caution!
Over-torquing the Ceiling Clamps can damage the clamp or ceiling. Only tighten the clamp until it contacts the ceiling and you start to feel some resistance. If using a power screwdriver, set the torque level to the lowest setting.

10 Preparing the Bubble

The inside of the housing may contain packing material to safeguard the camera during shipping. If so, you must remove the packing material before attaching the in-ceiling housing to the interface box.

Notice!
To avoid excessive moisture saturation inside the housing, limit the amount of time that the bubble is disconnected from the housing. Bosch recommends that the bubble be removed from the housing for no more than five (5) minutes.

Remove the bubble from an in-ceiling housing

1. Loosen the lockscrew (item 1 in the illustration below) in the trim ring using a P1 or smaller Phillips screwdriver until the bubble can rotate freely.
2. Then rotate the bubble counterclockwise approximately 1/4 turn until it releases from the In-Ceiling Housing. See the figure below for an illustration.

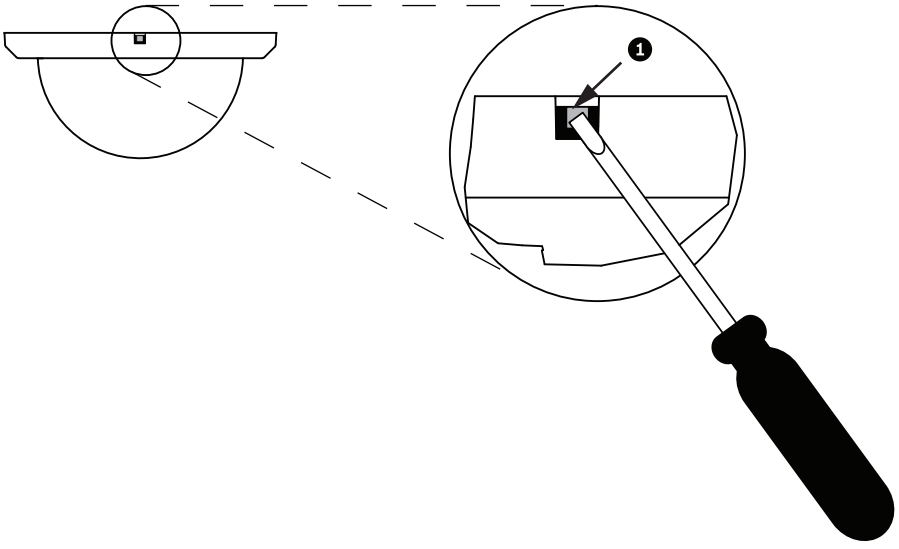


Figure 11.1: Bubble Release Screw

3. Remove the foam inserts surrounding the camera module.

Remove the bubble from a pendant housing

1. Using both hands, apply a firm counterclockwise (looking up at the dome) rotational force on the Pendant Bubble Assembly to set the bubble latch.
2. Insert a small (2 mm) straight blade screw driver into the release opening in the bubble trim-ring to release the lock, and then remove the screwdriver.

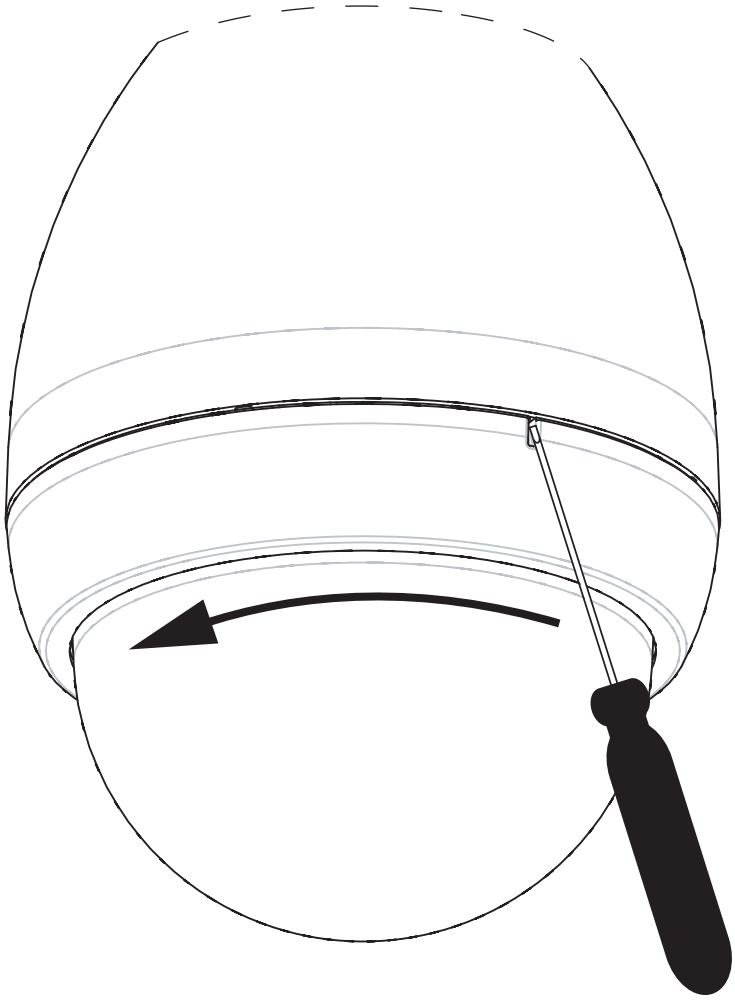


Figure 11.2: Pendant Bubble Release Opening

3. Firmly rotate the bubble counterclockwise approximately 20 degrees until the bubble assembly releases from the Pendant Housing.

Replace the trim ring (optional) (In-ceiling models)

The dome bubble for in-ceiling models of AUTODOME 7000 comes assembled with a white trim ring. An optional black trim ring is supplied in the shipping box. To replace the white trim ring, follow these steps:

1. Remove the four (4) Phillips head screws from the inner ring.
2. Remove the white trim ring.
3. For In-ceiling models, verify that the trim ring gasket is in place. (Refer to the graphic in *Installing the Ceiling (IP54 Housing) Gasket, page 64* for an illustration of the correct placement of the gasket.)
4. Place the black trim ring over the inner ring.
5. Replace and tighten the four (4) screws.

Replace the bubble in an in-ceiling housing

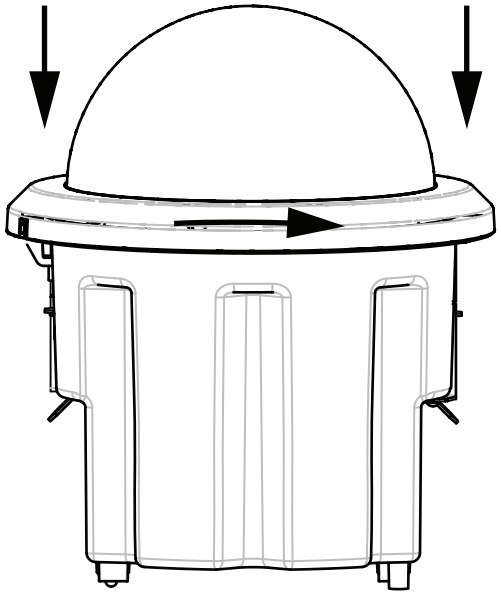


Figure 11.3: In-Ceiling Bubble

1. Use a non-permanent marking instrument (such as chalk or a carpenter pencil) to mark on the ceiling the screw slot in the in-ceiling housing.
2. Place the bubble over the Camera Module, and align it until it settles.
3. Rotate the trim ring, not the bubble itself, clockwise until it locks in position in the housing. The ring becomes tight and may be difficult to turn. Aligning the screw slots by using the chalk or pencil mark as reference ensures that you align both screw slots.

Warning!

Trim ring can become deformed

If the trim ring is not turned completely, the screw slot on the trim ring will not be aligned with the screw slot in the housing. You cannot see the screw slot in the housing when you are turning the screw in the slot in the trim ring. You can turn the screw in the slot in the trim ring, but miss the screw slot on the housing. Forcing the screw into the trim ring (without the screw going into the screw slot in the housing) can deform the ring.

4. Erase the chalk or pencil mark if desired.

Replace the bubble in a pendant housing

1. Insert the bubble and trim ring assembly into the pendant housing.
2. Rotate the assembly clockwise until it locks. The latch mechanism makes a click when it locks.

11 Connection

11.1 Connecting the AUTODOME camera to the PC

1. Install the camera according to the instructions in the appropriate Installation section of this manual.
2. Connect an Ethernet cable from camera's RJ45 connector to a dedicated network switch to bypass the Local Area Network (LAN).
3. Connect the dedicated network switch to the RJ45 connector on the PC (see option A below).

Notice!
The camera can also be connected directly to a PC using an Ethernet crossover cable with RJ45 connectors (see option B below).

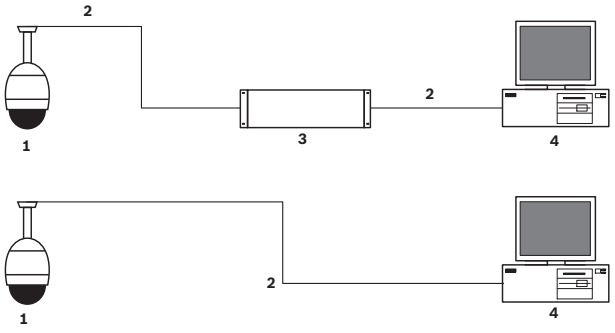


Figure 12.1: AUTODOME 7000 Series System Configuration

1	AUTODOME 7000 Series
2	IP Connection
3	Network Switch
4	Computer

Notice!
You can also use the Bosch Video Client software application to configure the network settings for an AUTODOME 7000 Series camera. Go to *www.boschsecurity.com* to download the Configuration Manager software and Operating Manual.

11.2 Power Cable and Wire Distances Guides

Power

115/230 VAC	
Copper Wire	To comply with local codes.

Caution!

Compliance with EN50130-4 Alarm Standard – CCTV for Security Applications
To meet the requirements of the EN50130-4 Alarm Standard, an ancillary uninterruptable power (UPS) supply is necessary. The UPS must have a **Transfer Time** between 2–6 ms and a **Backup Runtime** of greater than 5 seconds for the power level as specified on the product datasheet.

Maximum Wire Distances from Power Supply to AUTODOME

24 V to AUTODOME				
	VA / Watts	**14 AWG (2.5 mm)**	**16 AWG (1.5 mm)**	**18 AWG (1.0 mm)**
HD models with IVA, Outdoor	60 / 55	58 m (190 ft)	36 m (119 ft)	23 m (75 ft)

Maximum Wire Distances from Power Supply to AUTODOME 7000 HD

24 V to AUTODOME 7000				
	VA / Watts	**14 AWG (2.5 mm)**	**16 AWG (1.5 mm)**	**18 AWG (1.0 mm)**
HD models with IVA, Indoor	35 / 19	99 m (325 ft)	62 m (205 ft)	39 m (129 ft)
HD models with IVA, Outdoor	60 / 55	58 m (190 ft)	36 m (119 ft)	23 m (75 ft)

11.3 Ethernet Connections

The camera connects to a 10 Base-T/100 Base-TX network either directly or via a hub. Video, optional audio input, optional audio output, and control are transmitted over a standard TCP/IP network using the built-in Web server. In addition, power can be supplied over the Ethernet cable using the Bosch High PoE 60W midspan (sold separately). Power can also be supplied over the Ethernet cable to in-ceiling models and indoor/outdoor pendant models used in indoor applications (where the heater is not powered) using PoE+ PSEs (midspan switches) compliant with the IEEE 802.3at, class 4 standard.
The camera can be connected simultaneously to a 24 VAC power supply and to a High PoE 60 W midspan. The camera uses power from the 24 VAC power supply. If this power supply fails, the camera seamlessly switches power input to the High PoE 60 W midspan. The camera switches back to the 24 VAC power supply once power is restored.
Refer to Using the IP Interface, for instructions on configuring an IP environment.

Warning!

BOSCH High PoE or PoE+ (802.3at): Use only approved High PoE or PoE+ (802.3at) devices. For outdoor pendant applications that require heater power use only the Bosch High PoE midspan (sold separately) to power the camera and the heaters. For in-ceiling or indoor pendant applications that don't require heater power, standard PoE+ (802.3at) midspans or switches can be used to power the camera.
When powering the camera via PoE or a midspan device, additional surge protection is required.
If auxiliary power (24VAC camera and 24VAC heater) and High PoE are applied simultaneously, the camera selects the auxiliary 24VAC input and draws minimal power from the High PoE midspan.

Caution!
Ethernet CAT 5E/CAT 6 cables must be routed through earth-grounded conduit for indoor or outdoor applications. For outdoor applications, the conduit should be capable of withstanding the outdoor environment.

Notice!
The heater in an outdoor AUTODOME unit cannot be powered via the Power-over-Ethernet + (IEEE 802.3at, class 4) standard, unless the heater is connected to a High PoE Midspan 60W, Single port (sold separately). See the Installation Manual of the Midspan for details.

Cable Type	CAT-5E or CAT 6 Ethernet
Maximum Distance	100 m (328 ft)
Bandwidth	10 Base-T/100 Base-TX
High PoE (required for pendants in outdoor applications that use heaters)	Use the Bosch High PoE 60W midspan (sold separately).
PoE+ (only for indoor models or indoor applications for pendant model where heater is not required)	IEEE 802.3at, class 4 standard
Terminal Connector	RJ45, Female

Notice!
Consult the National Electrical Code (NEC) for cable bundling requirements and limitations.

11.4 Fiber Optic Ethernet Media Converter (Optional)

The fiber optic media converter is designed to transmit 10/100 Mbps Ethernet signals over fiber optic cable using 10/100 Mbps Small Form-factor Pluggable (SFP) modules. The SFP modules are available as multi-mode fiber (MMF) or single-mode fiber (SMF) models with a single SC connector or dual-fiber with an LC connector. Refer to the *VG4-SFPSCKT Fiber Optic Media Converter Installation Guide*.

Ethernet Media Converter	
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Fiber Type, MMF	50/125 µm MMF. For 50/125 µm fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.
Fiber Type, SMF	8–10/125 µm SMF. Must meet or exceed fiber standard ITU-T G.652.

Ethernet Media Converter	
Maximum Distance	20 km (12.4 miles)
Requirement	Media converter receiver (CNFE2MC/IN) at controller end of system
Terminal Connection	Duplex LC or Single SC

11.5 Alarms and Relay Connections

Alarm Inputs

The camera provides seven alarm inputs. Each input can be activated by dry contact devices such as pressure pads, passive infra-red detectors, door contacts, and similar devices. The table below summarizes the size and distance wires.

Wire Size		Maximum Distance	
AWG	mm	feet	meters
22	0.644	500	152.4
18	1.024	800	243.8

Table 12.1: Alarm wire guide

You wire alarms either Normally Open (N.O.) or Normally Closed (N.C.), and must program the alarm inputs N.O. (the default) or N.C. through the SETTINGS page.
The camera incorporates two types of alarms: Non-supervised and Supervised. In addition to transmitting an alarm condition, a supervised alarm also transmits a tamper condition. Depending on how the alarm is configured, a short or a break in the alarm's circuit can trigger the tamper signal.

Configuring Supervised Alarms (inputs 1 and 2)

To configure Alarm 1 or 2 (pin 5 or 6) for supervision, you must install a 2.2 K end-of-line resistor in the circuit. Then, you program the alarms through the Settings menu to either Normally Open (N.O.) or Normally Closed (N.C.).

Notice!

Only Alarms 1 and 2 (pins 5 or 6) can be configured for supervision. Once a supervised alarm is programmed it does not need to be enabled to indicate a tamper condition.

Configuring a Normally Open Supervised Alarm

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the camera.

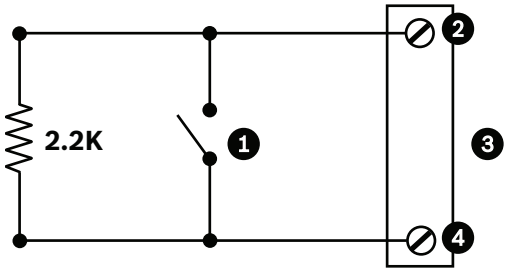


Figure 12.2: N.O.S. - Normally Open Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

3. From the Settings menu, select Advanced Mode > Interfaces > Alarm Inputs, select the Alarm Input # and N.O. See the table below for contact and condition details.

AutoDome Programmed N.O.S.	
Contact	Alarm Condition
Open	Normal
Closed	Alarm
Cut or brake	Tamper

Configuring a Normally Closed Supervised Alarm

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the camera.

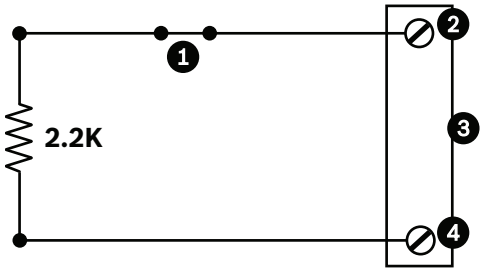


Figure 12.3: N.C.S. - Normally Closed Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

3. From the Settings menu, select Advanced Mode > Interfaces > Alarm Inputs, select the Alarm Input # and N.C. See the table below for contact and condition details.

AutoDome Programmed N.C.S.	
Contact	Alarm Condition
Open	Alarm
Closed	Normal
Short	Tamper

Configuring Non-supervised Alarms (inputs 3 through 7)

You can configure alarms 3 through 7 as non-supervised Normally Open (N.O.) or Normally Closed (N.C.) alarms.

Configuring a Normally Open Non-supervised Alarm

1. Connect the alarm to the appropriate input (3 through 7) and ground at the camera.

Figure 12.4: N.O. - Normally Open Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 3 to 7	4	Ground

2. From the Settings menu, select Advanced Mode > Interfaces > Alarm Inputs, select the Alarm Input # and N.O. See the table below for contact and condition details.

AutoDome Programmed N.O.	
Circuit	Alarm Indication
Open	Normal
Closed	Alarm

Configuring a Normally Closed Non-supervised Alarm

1. Connect the alarm to the appropriate input (3 through 7) and ground at the camera.

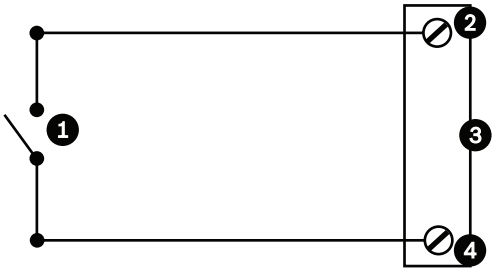


Figure 12.5: N.C. Normally Closed Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 3 to 7	4	Ground

2. From the Settings menu, select Advanced Mode > Interfaces > Alarm Inputs, select the Alarm Input # and N.C. See the table below for contact and condition details.

AutoDome Programmed N.C.	
Circuit	Alarm Indication
Open	Alarm
Closed	Normal

Alarm Outputs

The camera incorporates two (2) types of alarm outputs: one dry contact relay and three (3) open collector outputs or transistor outputs.

Configuring a Dry Contact Relay

The dry contact relay acts like an on/off switch. It has a maximum voltage rating of 2 A @ 30 DC.

1. Connect the appropriate stripped wire to the camera's COM connector.
2. Connect the appropriate stripped wire to the N.O. or N.C. connector, depending on your requirement.

Configuring an Open Collector Output

Outputs 1, 2, and 3 are open collector types. These outputs must be connected to a positive voltage between 5 and 32 V to complete the circuit, with a maximum voltage rating of 32 VDC @ 150 ma.

1. Connect the appropriate stripped wire to the open connector (1, 2, or 3) of the transistor.
2. Connect the appropriate stripped wire to the ground (GND) connector.

11.6 Audio Connections (Optional)

The camera is capable of receiving line level input signals and transmitting them over a network. It is also capable of receiving audio from the same network and sending it as audio output from the camera. The audio input signal is transmitted in sync with the video signals. As a result, for example, a door intercom system can be connected at the camera location.

Notice!

The line ports of the intercom should be used for transmitting audio signals on the intercom systems.

The audio line input is not suitable for direct microphone signal connection.

The audio line output is not suitable for direct speaker connection unless using a powered/ amplified speaker with line level input.

Audio Line Input Specifications

The following Line Input specifications should be complied with in all cases.

Max. Input Voltage	1 Vrms
Impedance	9 K Ω (typical)
Shield	Bare copper braid: 95% coverage
Internal gain level adjustment is available in case the signal level is too low.	

Audio Line Output Specifications

The following Line Output specifications should be complied with in all cases.

Typical Output Voltage	1 Vrms
Impedance	1.5 K Ω (typical)

Shield	Bare copper braid: 95% coverage
Internal gain level adjustment is available in case the signal level is too low.	

Wire Specifications

Wire Type	Shielded Coax (recommended)
Distance	Typically 10 m (33 ft), but depends on the signal level
Gage	Typically 22 AWG to connector (P105/P106), but depends on the style of connector used
Shield	Bare copper braid: 95% coverage
Center conductor	Stranded bare copper

Note that long distances are more susceptible to introducing noise into the signal.

Audio Line Level Input Connections

1. Remove the 100 Ohm termination resistor from the C+ to C- terminals.
2. Connect the audio line level source to the Audio_In+ (C+) input terminal.
3. Connect the audio signal ground to the Audio_In- (C-) input terminal.

Audio Line Level Output Connections

1. Connect the audio line level input of the audio output device (for example, an amplified speaker or a PC line level input) to the Audio_Out+ (RXD) output terminal.
2. Connect the audio line level output signal ground to the Audio_Out- (TXD) output terminal.

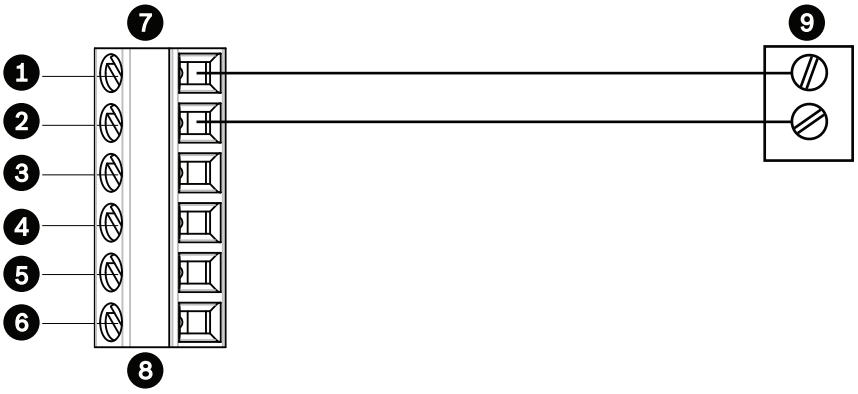


Figure 12.6: Connections for audio over an Ethernet network

1	Audio_In- (C-)	7	AUTODOME Data In/Out
2	Audio_In+ (C+)	8	P105/P106 Connector
3	Earth Ground	9	Audio Out
4	Audio_Out+ (RXD)		
5	Audio_Out– (TXD)		
6	Signal Ground		

Notice!

Separate the audio cables from the AC power lines to avoid noise.

To configure audio on the camera, refer to *Basic Mode: Audio, page 86* or *Audio, page 106*.

12 Configuration

12.1 System Requirements

The camera requires specific software and hardware to allow a user to view live images and to configure camera settings over a TCP/IP network. These requirements are:

- A computer with the Microsoft Windows XP, Vista, or Windows 7 operating system, network access, and the Microsoft Internet Explorer Web browser version 8.0 or later, or
- A computer with Microsoft Windows XP, Vista, or Windows 7 operating system, network access, and reception software such as the Bosch Video Management System or the Video Client, or
- A compatible hardware decoder from Bosch Security Systems as a receiver and a connected video monitor.

Notice!

The Web browser must be configured to enable Cookies to be set from the IP address of the unit.

In Windows 7, deactivate protected mode on the Security tab under Internet Options. You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer. In Windows Vista, deactivate protected mode on the Security tab under Internet Options.

You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

If you choose to use a computer running Microsoft Internet Explorer or any of the Bosch software, the computer must conform to the following minimum requirements:

- Operating System: Windows XP (Service Pack 3) or Windows 7 (32 or 64 bits)
- Processor: Intel Pentium Quad Core, 3.0 GHz or comparable
- RAM: 2048 MB
- Free Hard Disk Space: 10 GB
- Video system: NVIDIA GeForce 8600 or higher display with a minimum of 16-bit color
- Network interface: 100/1000-BaseT
- Software:
  - Microsoft Internet Explorer, version 8.0 or higher
  - Video Client
  - DirectX 9.0c
  - Oracle Java Virtual Machine 1.6.0_26 or newer

The camera includes the means to decode the video via a web browser; however, for more advanced features such as local recording to PC, snapshot, and full screen display, you must obtain MPEG-ActiveX.

For the latest versions of the Video Client, DirectX, Oracle Java Virtual Machine, and MPEG-ActiveX software, go to *www.boschsecurity.com*, navigate to the product page for your camera, and then download the software from the Software tab.

Notice!

Ensure that the graphics card is set to 16-bit or 32-bit color. If you need further assistance, contact your PC system administrator.

12.2 Configuring the Camera

To operate the camera in your network, you must assign a valid network IP address to it. If your network has a DHCP server, the IP address of the camera defaults to the first address available. If your network does not have a DHCP server, the default IP address of the camera is 192.168.0.1. You may need to change this address if it conflicts with another device on your network. Refer to *Basic Mode: Network, page 85* for more information.
To configure the camera properly for your network, you need the following information:

- Unit IP address: An identifier for the camera on a TCP/IP network. For example, 140.10.2.110 is a valid syntax for an IP address.
- Subnet mask: A mask used to determine what subnet an IP address belongs to.
- Gateway IP address: A node on a network that serves as an entrance to another network.
- Port: An endpoint to a logical connection in TCP/IP and UDP networks. The port number identifies the use of the port for use through a firewall connection.

Notice!
Ensure that the network parameters of your cameras are available before you begin configuration.

The camera defaults are as follows:

- IP Address: 192.168.0.1 or first available address (see above)
- Subnet Mask: 255.255.255.0
- Gateway IP Address: 0.0.0.0

The following sections provide instructions about installing the software necessary to view images over an IP connection, configuring the IP network settings and accessing the camera images from a Web browser.
The camera has a default IP address of 192.168.0.1. To change the IP address or any network settings, you can use the Configuration Manager software or the 7000 Series server.

Notice!
Contact your local network administrator for a valid IP address, Subnet Mask, and a Gateway IP Address.

Using the Configuration Manager
Configuration Manager is an optional network utility provided on the Bosch Security Systems Web site. Use the Configuration Manager Manual to make any configuration changes.

Notice!
Depending on the PC network security settings, the user may need to add the new IP address to the browser's **trusted sites** list for the controls to operate.

Using the 7000 Series Web Server
To configure the camera using the 7000 Series server, do the following:

1. Set the IP address on the PC to 192.168.0.10 to ensure that the PC and the camera are on the same Subnet.
2. Launch your web browser (such as Microsoft Internet Explorer) and navigate to the following URL: http://192.168.0.1
   The web browser opens the **LIVE** page for the device; a security warning message is displayed.
3. Check the Always Trust Box, and then click YES.

4. Click the Settings link, located at the top of the **LIVE** page.
5. In the left pane of the window, click **Advanced Mode**, and then click **Network**. The Network menu expands.
6. Click **Network Access** to open the Network Access page.

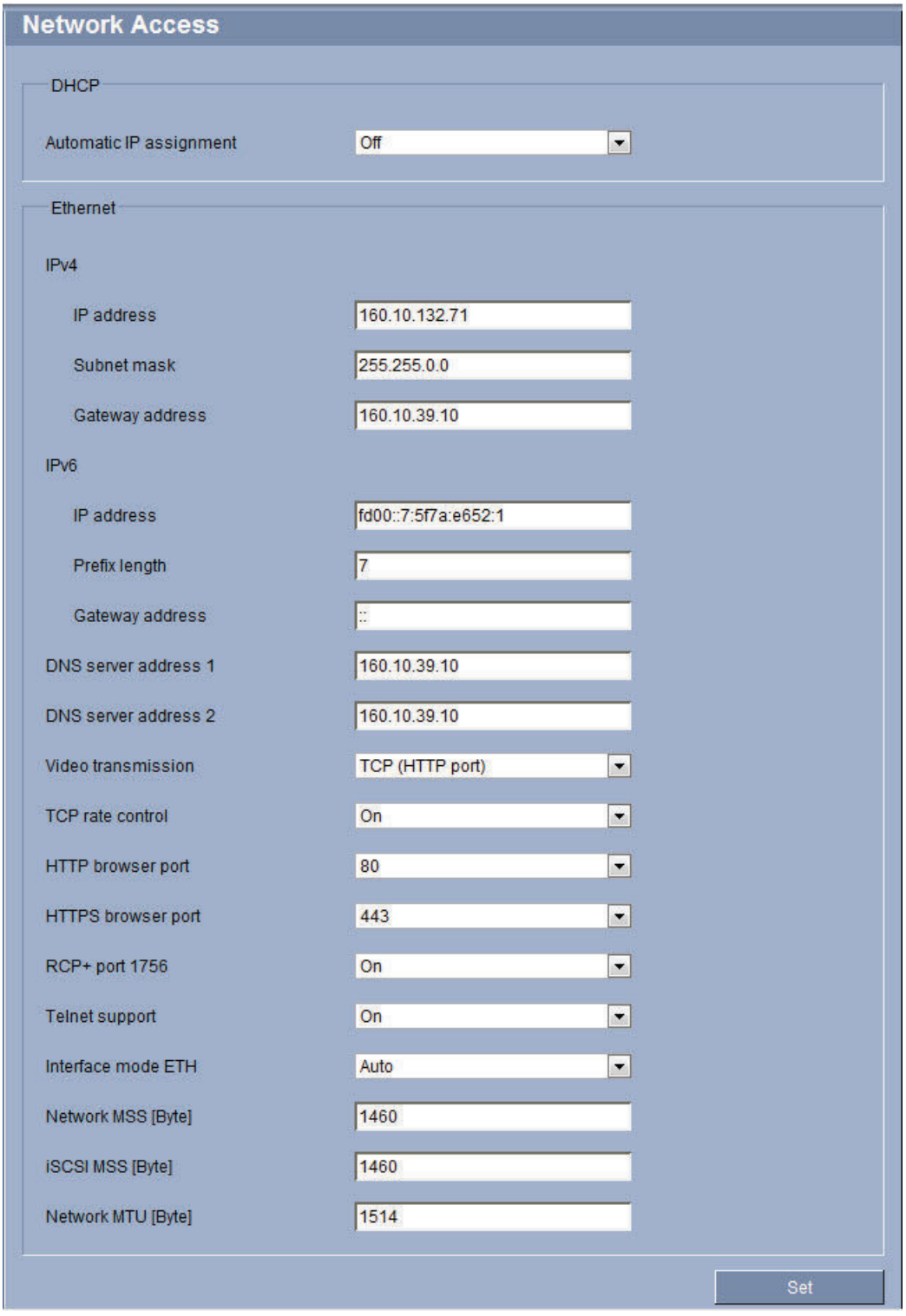


Figure 13.1: Network Access page

7. Configure the settings on this page based on the addresses provided by your local network administrator. Note that the text on the Set button changes to Set and Reboot.

8. Click Set and Reboot. The camera will reset (go through the homing sequence, which usually takes 30 seconds to complete), and then the **LIVE** page appears, with updated video and the new IP address.

Notice!

Click the **Help on this page?** link if you need more information.

About the SETTINGS Page

The **SETTINGS** page provides access to the configuration menu, which contains all the unit's parameters arranged in groups. You can view the current settings by opening one of the configuration screens. You can change the settings by entering new values or by selecting a predefined value from a list field.

There are two options for configuring the unit or checking the current settings:

– Basic mode
– Advanced mode

In **Basic Mode,** the most important parameters are arranged in seven groups. This allows you to change the basic settings with just a few entries and then put the device into operation.

Advanced Mode is recommended for expert users or system support personnel. You can access all unit parameters in this mode. Settings that affect the fundamental functionality of the unit (such as firmware updates) can only be altered in the advanced mode.

Caution!

The settings in the Advanced Mode should only be processed or modified by expert users or system support personnel.

All settings are backed up in camera memory so they are not lost even if the power fails. The exception is the time settings, which are lost after 1 hour without power if no central time server is selected.

Starting Configuration

▸ Click the **SETTINGS** link in the upper section of the window. The Web browser opens a new page with the configuration menu.

Navigation

1. Click one of the menu items in the left window margin. The corresponding submenu is displayed.
2. Click one of the entries in the submenu. The web browser opens the corresponding page.

Making Changes

Each configuration screen shows the current settings. You can change the settings by entering new values or by selecting a predefined value from a list field.

Not every page has a Set button. Changes to pages without a Set button are set immediately. If a page does show a Set button, you must click the Set button for a change to take effect.

Caution!

Save each change with the associated **Set** button.

Clicking the **Set** button saves the settings only in the current field. Changes in any other fields are ignored.

Some changes only take effect after the unit is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.

2. Click the **Set and Reboot** button. The camera reboots and the changed settings are activated.

12.3 Configuring Audio (Optional)

Enabling Audio Transmission

To transmit audio via the IP connection, follow these steps:

1. Open the **LIVE** page, and then click the **Settings** tab.
2. In the left pane, click **Advanced**, and then click **Web Interface**. The Web Interface menu expands.
3. Click **LIVE Functions**. The **LIVE Functions** page appears.
4. Click the **Transmit Audio** radio button to enable for audio.

Activating Audio Reception

To configure audio via the Web browser, follow these steps:

1. Open the **LIVE** page, and then click the **Settings** tab.
2. In the left pane, click **Advanced Mode**, and then click **Camera**. The Camera menu expands.
3. Click **Audio**. The Audio page appears. The page displays the current video image in the small window next to the slide controls to help you verify the audio source and improve the Peak levels.
4. Select the protocol in the **Audio** field to activate audio over IP. (Change the option to ON.)

Notice!

The audio signal is sent in a separate data stream parallel to the video data, and so increases the network load. The audio data is encoded according to G.711 or L16 and requires an additional bandwidth of approximately 80 Kbit/s for each connection.

5. If you wish to configure the input and output gain of the audio signals, set the Line In and Line Out fields to suit your specific requirements. Changes are effective immediately. The current level is displayed next to the slide control to help do this. Make sure that the display does not go beyond the green zone during modulation.

For more information, refer to *Audio, page 106*.

13 Configuration via IP, Basic Mode

13.1 Basic Mode: Device Access

Camera name
You can give the camera a name to make it easier to identify. The name makes the task of administering multiple units in larger video monitoring systems easier, for example using the Bosch Video Management Systems programs.
The device name is used for the remote identification of a unit, in the event of an alarm for example. For this reason, enter a name that makes it as easy as possible to quickly identify the location.

Caution!
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player being unable to play back the recording.

Confirm password
In each case, enter the new password a second time to eliminate typing mistakes.

Notice!
A new password is only saved when you click the **Set** button. You should therefore click the **Set** button immediately after entering and confirming a password.

13.2 Basic Mode: Date/Time

Device date/Device time/Device time zone
If there are multiple devices operating in your system or network, it is important to synchronize their internal clocks. For example, it is only possible to identify and correctly evaluate simultaneous recordings when all units are operating on the same time. If necessary, you can synchronize the unit with your computer's system settings.

Notice!
Ensure that recording is stopped before synching to the PC.

- Click the **Sync to PC** button to copy your computer's system time to the camera.

Time server IP address
The camera can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The unit polls the time signal automatically once every minute.

- Enter the IP address of a time server here.

Time server type
Select the protocol that is supported by the selected time server. Preferably, you should select the **SNTP server** as the protocol. This supports a high level of accuracy and is required for special applications and subsequent function extensions.
Select **Time server** for a time server that works with the protocol RFC 868.

13.3 Basic Mode: Network

The settings on this page are used to integrate the camera into an existing network.

Some changes only take effect after the unit is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click the **Set and Reboot** button. The camera reboots and the changed settings are activated.

DHCP
If a DHCP server is employed in the network for the dynamic assignment of IP addresses, you can activate acceptance of IP addresses automatically assigned to the camera. Certain applications (VIDOS, Bosch Video Management Systems, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

IP address
Enter the desired IP address for camera in this field. The IP address must be valid for the network.

Subnet mask
Enter the appropriate subnet mask for the selected IP address here.

Gateway address
If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box as **0.0.0.0**.

13.4 Basic Mode: Encoder

13.5 Basic Mode: Audio

You can set the gain of the audio signals to suit your specific requirements. The current video image is shown in the small window next to the slide controls to help you check the audio source and improve assignments. Your changes are effective immediately.
If you connect via Web browser, you must select the option **Transmit Audio** on the **LIVE Functions** page. (See *LIVE Functions, page 93*). For other connections, the transmission depends on the audio settings of the respective system.

Audio
The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction. If you do not want any audio data to be transmitted/received, select **Off**.

Line In
You can set the line input gain using the slider. Values range from 0 to 31. The default value is 0.

Line Out
You can set the line output gain using the slider. Values range from 0 to 79. The default value is 0.

13.6 Basic Mode: Recording

You can record the images from the camera on various local storage media or on an appropriately configured iSCSI system.

Storage medium

1. Select the required storage medium from the list.
2. Click the **Start** button to start the recording immediately.

13.7 Basic Mode: System Overview

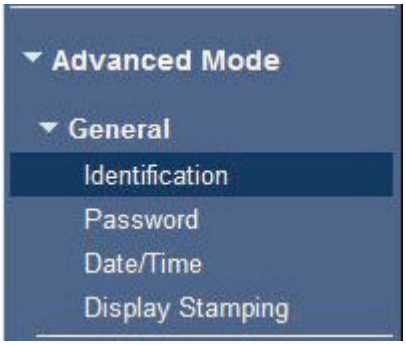
The data on this page are for information purposes only and cannot be changed. Keep a record of this information in case technical assistance is required.

Notice!

You can select all required text on this page with the mouse and copy it to the clipboard with the [Ctrl]+[C] key combination, for example if you want to send it via e-mail.

14 Configuration via IP, Advanced Mode

14.1 Advanced Mode: General



14.2 Identification

Camera name

The camera name makes it easier to identify the remote camera location, in the event of an alarm for example. It will be displayed in the video screen if configured to do so. The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the BVC or Bosch Video Management Systems Programs.

Enter a unique, unambiguous name for the camera in this field. You can use both lines for this. Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

You can use the second line for entering additional characters; these can be selected from a table.

1. Click the icon next to the second line. A new window with the character map is opened.
2. Click the required character. The character is inserted into the **Result** field.
3. In the character map, click the **<<** and **>>** icons to move between the different pages of the table, or select a page from the list field.
4. Click the **<** icon to the right of the **Result** field to delete the last character, or click the **X** icon to delete all characters.
5. Now click the **OK** button to apply the selected characters to the second line of the **Camera 1** parameters. The window will close.

Camera ID

Each device should be assigned a unique identifier that can be entered here as an additional means of identification.

Initiator extension

Add text to an initiator name to make identification easier in large iSCSI systems. This text is added to the initiator name, separated from it by a full stop. (You can see the initiator name in the System Overview page.)

14.3 Password

The camera is generally protected by a password to prevent unauthorized access to the unit. You can use different authorization levels to limit access.

Notice!

Proper password protection is only guaranteed when all higher authorization levels are also protected with a password. If a **live** password is assigned, for example, a **service** and a **user** password must also be set. When assigning passwords, you should therefore always start from the highest authorization level, **service**, and use different passwords.

Password

The camera operates with three authorization levels: **service**, **user** and **live**.
The highest authorization level is **service**. After entering the correct password, you can access all the functions of the camera and change all configuration settings.
With the **user** authorization level, you can operate the unit and also control cameras, for example, but you cannot change the configuration.
The lowest authorization level is **live**. It can only be used to view the live video image and switch between the different live image displays.
You can define and change a password for each authorization level if you are logged in as **service** or if the unit is not password protected.
Enter the password for the appropriate authorization level here.

Confirm password

In each case, enter the new password a second time to eliminate typing mistakes.

Notice!

A new password is only saved when you click the **Set** button. You should therefore click the **Set** button immediately after entering and confirming a password.

14.4 Date/Time

Date format

Select your required date format.

Device date/Device time

Notice!

Ensure that recording is stopped before synching to the PC.

If there are multiple devices operating in your system or network, it is important to synchronize their internal clocks. For example, it is only possible to identify and correctly evaluate simultaneous recordings when all units are operating on the same time.

1. Enter the current date. Since the unit time is controlled by the internal clock, there is no need to enter the day of the week – it is added automatically.
2. Enter the current time or click the **Sync to PC** button to copy your computer's system time to the camera.

Note: It is important that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

Device time zone

Select the time zone in which your system is located.

Daylight saving time
The internal clock can switch automatically between normal and daylight saving time (DST). The unit already contains the data for DST switch-overs up to the year 2018. You can use these data or create alternative time saving data if required.

Notice!
If you do not create a table, there will be no automatic switching. When changing and clearing individual entries, remember that two entries are usually related to each other and dependent on one another (switching to summer time and back to normal time).

1. First check whether the correct time zone is selected. If it is not correct, select the appropriate time zone for the system, and click the **Set** button.
2. Click the **Details** button. A new window will open and you will see the empty table.
3. Select the region or the city that is closest to the system's location from the list field below the table.
4. Click the **Generate** button to generate data from the database in the unit and enter it into the table.
5. Make changes by clicking an entry in the table. The entry is selected.
6. Clicking the **Delete** button will remove the entry from the table.
7. Select other values from the list fields below the table to change the entry. Changes are made immediately.
8. If there are empty lines at the bottom of the table, for example after deletions, you can add new data by marking the row and selecting required values from the list fields.
9. Now click the **OK** button to save and activate the table.

Time server IP address
The camera can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The unit polls the time signal automatically once every minute.
Enter the IP address of a time server here.

Time server type
Select the protocol that is supported by the selected time server. Preferably, you should select the **SNTP server** as the protocol. This supports a high level of accuracy and is required for special applications and subsequent function extensions.
Select **Time server** for a time server that works with the protocol RFC 868.

14.5 Display Stamping

Various overlays or “stamps” in the video image provide important supplementary information. These overlays can be enabled individually and are arranged on the image in a clear manner. After you set all necessary parameters, click the **View Control** link to see how the stamping appears on the **LIVE** page.

Camera name stamping
This field sets the position of the camera name overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Time stamping
This field sets the position of the time overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Display milliseconds
If necessary, you can also display milliseconds. This information can be useful for recorded video images; however, it does increase the processor's computing time. Select **Off** if you do not need to display milliseconds.

Alarm mode stamping
Select **On** to display a text message overlay in the image in the event of an alarm. It can be displayed at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Alarm message
Enter the message to be displayed in the image in the event of an alarm. The maximum text length is 31 characters.

Title OSD
Select **On** to continuously display sector or shot title overlays in the image. Select **Momentary** to display sector or shot title overlays for a few seconds. OSD titles can be displayed at a position of your choice, or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Camera OSD
Select **On** to momentarily display camera response information, such as Digital Zoom, Iris open/close, and Focus near/far overlays in the image. Select **Off** to display no information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Transparent stamping
Check this box to make the stamp on the image transparent.

Video watermarking
Choose **On** if you wish the transmitted video images to be “watermarked”. After activation, all images are marked with a green check. A red check indicates that the sequence (live or saved) has been manipulated.

Video authentication
Select a method for verifying the integrity of the video in the **Video authentication** drop-down box.
If you select **Watermarking** all images are marked with an icon. The icon indicates if the sequence (live or saved) has been manipulated.
If you want to add a digital signature to the transmitted video images to ensure their integrity, select one of the cryptographic algorithms for this signature.

Enter the interval (in seconds) between insertions of the digital signature.

14.6 Advanced Mode: Web Interface

14.7 Appearance

On this page you can adapt the appearance of the web interface and change the website language to meet your requirements. If necessary, you can replace the manufacturer's logo (top right) and the product name (top left) in the top part of the window with individual graphics.

Notice!
You can use either GIF or JPEG images. The file paths must correspond to the access mode (for example **C:\Images\Logo.gif** for access to local files, or **http://www.mycompany.com/images/logo.gif** for access via the Internet/Intranet).
When accessing via the Internet/Intranet, ensure that a connection is always available to display the image. The image file is not stored in the camera.

Website language
Select the language for the user interface here.

Company logo
Enter the path to a suitable graphic if you want to replace the manufacturer's logo. The image file can be stored on a local computer, in the local network or at an Internet address.

Device logo
Enter the path to a suitable graphic if you want to replace the product name. The image file can be stored on a local computer, in the local network or at an Internet address.

Notice!
If you want to use the original graphics again, simply delete the entries in the **Company logo** and **Device logo** fields.

Show VCA metadata
When video content analysis (VCA) is activated, additional information is displayed in the live video stream. For example, in Motion+ mode, the sensor areas for motion detection are marked.

Show VCA trajectories
When video content analysis (VCA) is activated, check this item to show additional information that traces the path of objects.

Show overlay icons
Select this checkbox to show overlay icons on the live video image.

Video player
Select the desired video player from the list in the drop-down box. Options are “Auto detect” (default), Bosch Video SDK, Bosch Autoload Decoder, JPEG

JPEG size
You can specify the size of the JPEG image on the **LIVE** page. Options are Small, Medium, Large, 720p, 1080p, and “Best possible” (default).

JPEG interval
You can specify the interval at which the individual images should be generated for the M-JPEG image on the **LIVE** page.

JPEG quality
You can specify the quality at which the JPEG images appear on the **LIVE** page.

14.8 LIVE Functions

On this page you can adapt the functions on the **LIVE** page to your requirements. You can choose from a variety of different options for displaying information and controls.

1. Check the box for the items that are to be made available on the **LIVE** page. The selected items are indicated by a check mark.
2. Check whether the required functions are available on the **LIVE** page.

Transmit audio
You can only select this option if audio transmission is actually switched on (see *Audio, page 106*).The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction.

Lease time (s)
The lease time in seconds determines the time beyond which a different user is authorized to control the camera after no further control signals are received from the current user. After this time interval, the camera is automatically enabled.

Show alarm inputs
The alarm inputs are displayed next to the video image as icons along with their assigned names. If an alarm is active, the corresponding icon changes color.

Show alarm outputs
Alarm outputs are shown next to the video image as icons, along with their assigned names. If the alarm output is active, the corresponding icon changes color.

Show event log
The event messages are displayed along with the date and time in a field next to the video image.

Show system log
The system messages are displayed along with the date and time in a field next to the video image and provide information about establishing and ending connections, for example.

Allow snapshots
Here you can specify whether the icon for saving individual images (snapshots) should be displayed below the live image. Individual images can only be saved if this icon is visible.

Allow local recording
Here you can specify whether the icon for saving (recording) video sequences on the local memory should be displayed below the live image. Video sequences can only be saved if this icon is visible.

I-frames only stream
Here you can specify whether the **LIVE** page displays a viewing tab for an I-frame only stream.

Show scene list
Here you can specify whether the View Controls section of the **LIVE** page displays a drop-down box with the list of scenes set in Advanced Mode > Camera > Scenes and Tours of the **SETTINGS** page.

Show ‘Intelligent Tracking’
Here you can specify whether the **LIVE** page displays the controls for the Intelligent Tracking feature.

Show ‘Special Functions’
Here you can specify whether the **LIVE** page displays the Special Functions section.

Path for JPEG and video files

1. Enter the path for the storage location of individual images and video sequences that you can save from the **LIVE** page.

2. If necessary, click **Browse** to find a suitable directory.

14.9 Logging

Save event log
Check this option to save event messages in a text file on your local computer. You can then view, edit and print this file with any text editor or the standard Office software.

File for event log
1. Enter the path for saving the event log here.
2. If necessary, click **Browse** to find a suitable directory.

Save system log
Check this option to save system messages in a text file on your local computer. You can then view, edit and print this file with any text editor or the standard Office software.

File for system log
1. Enter the path for saving the system log here.
2. If necessary, click **Browse** to find a suitable directory.

14.10 Advanced Mode: Camera

14.11 Installer Menu

The following options are available only for HD cameras:

Base frame rate
This option allows you to set the frame rate that the camera uses to transmit video. Select either **25 ips** or **30 ips**. If you select 25 ips, the camera will stream video at 25 or 50 ips. If you select 30 ips, the camera will stream video at 30 or 60 ips, depending on the option selected in the Encoder Stream.

Max. frame rate
This option determines the maximum frame rate that the camera streams video. Select one of the following options:

Max. Frame Rate Option	Available Streaming Options
25/30 ips (up to 1920 x 1080)	H.264 MP 720p25/30 Fixed H.264 MP 1080p25/30 Fixed
50/60 ips (up to 1280 x 720)	H.264 MP 720p50/60 Fixed

Notice!
Changing the Base frame rate or Max. frame rate
A change to the Base frame rate or to the Max. frame rate parameter requires a reboot of the HD camera. The reboot process takes approximately 10-20 seconds. During this time, no changes can be made. The cameo image freezes.

This section also displays a graphic that shows the relative image size difference between an image encoded at 1280 x 720 and at 1920 x 1080.

Orientation
Reverses the image 180º (ideal when mounting upside down). Set the orientation to Normal (default) or Inverted.

Caution!
The camera disables the Privacy Mask function if the orientation is set to Inverted.

SC settings
Click the Default button to restore all camera settings to their original defaults.

SC data
Click the Default button to clear all prepositions, privacy masks, and other configuration settings defined in the camera's web server to their default values.

Reboot device
Click the Reboot button to reboot the camera. There is a ten (10) second pause before the dome starts its homing phase. During the homing phase, the camera pans left and right and tilts up and down. It also adjusts the lens focus. The entire homing phase lasts approximately 40 seconds.

Factory defaults
Click the **Defaults** button to restore the configuration settings defined in the camera's web server to their default values. A confirmation screen appears. Allow 5 seconds for the camera to optimize the picture after a mode reset.

14.12 Encoder Profile

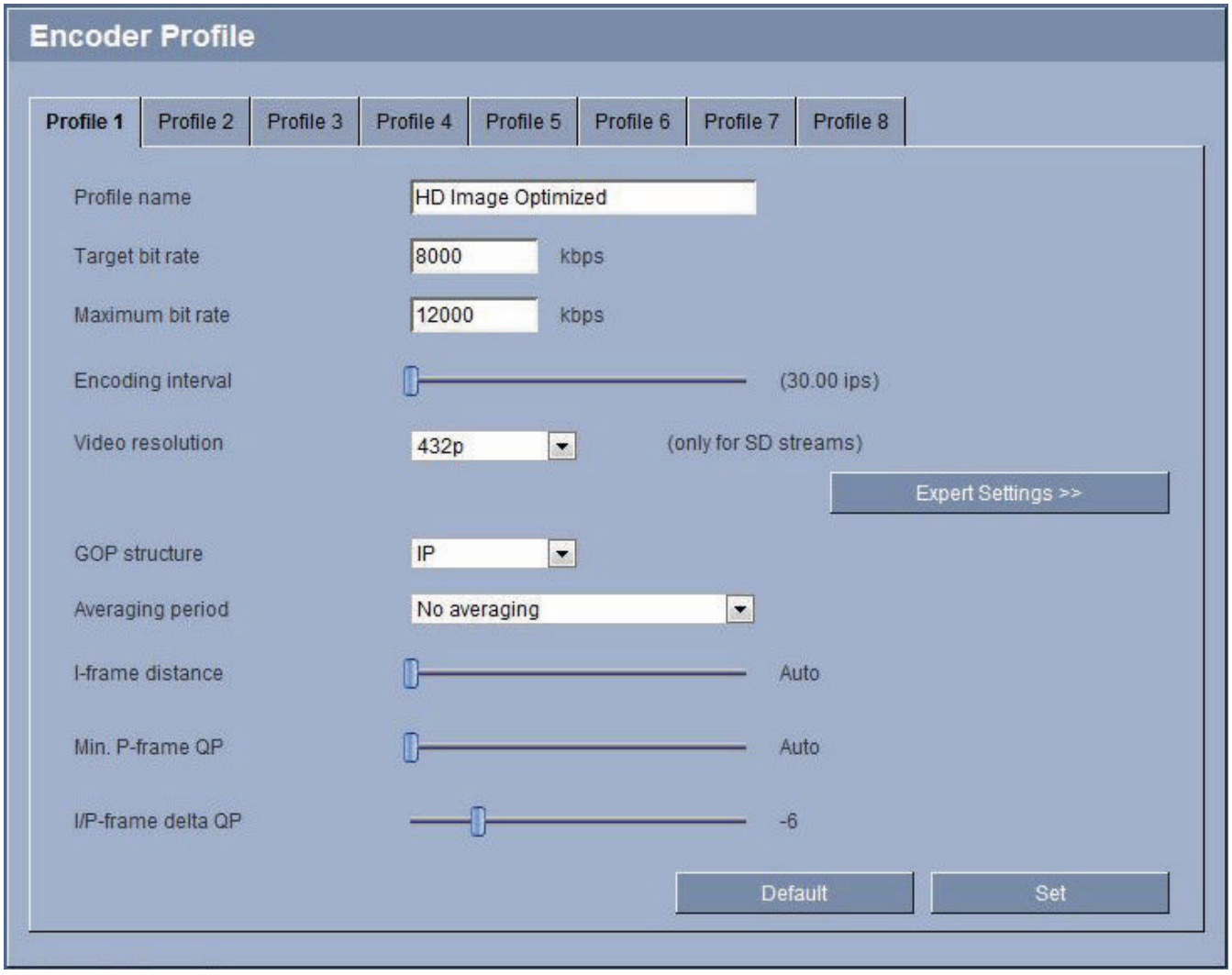


Figure 15.1: Advanced Mode>Camera>Encoder Profile>Profile 1 [HD models only]

For the video signal encoding, you can select a code algorithm and you can change the presets for the profiles.

You can adapt the video data transmission to the operating environment (for example network structure, bandwidth, data load). To this end, the camera simultaneously generates two data streams (Dual Streaming), which compression settings you can select individually, for example one setting for transmissions to the Internet and one for LAN connections.

Pre-programmed profiles are available, each giving priority to different perspectives.

You can change individual parameter values of a profile and you can also change the name.

You can switch between profiles by clicking the appropriate tabs.

Caution!

The profiles are rather complex. They include a large number of parameters that interact with one another, so it is generally best to use the default profiles.

Change the profiles only once you are fully familiar with all the configuration options.

Notice!
In the default setting, Stream 1 is transmitted for alarm connections and automatic connections. Keep this fact in mind when assigning the profile.

Notice!
All parameters combine to make up a profile and are dependent on one another. If you enter a setting that is outside the permitted range for a particular parameter, the nearest permitted value will be substituted when the settings are saved.

Profile name
If required, enter a new name for the profile.

Target bit rate
To optimize use of the bandwidth in the network, limit the data rate for the device. The target data rate should be set according to the desired picture quality for typical scenes with no excessive motion.
For complex images or frequent changes of image content due to frequent movements, this limit can temporarily be exceeded up to the value entered in the **Maximum bit rate** field.

Maximum bit rate
This maximum bit rate is not exceeded under any circumstances. Depending on the video quality settings for the I- and P-frames, this fact can result in individual images being skipped. The value entered here must be at least 10% higher than the value entered in the **Target bit rate** field. If the value entered here is too low, it will be adjusted automatically.

Encoding interval
This parameter determines the interval at which images are encoded and transmitted. For example, entering or selecting 4 means that only every fourth image is encoded, while the following there are skipped, which can be particularly advantageous for networks with low bandwidths. The image rate in (images per second (ips) appears next to the text field or slider.

Video resolution
Select the desired resolution for the video image.
For standard definition only, options are:
- 240p
- 480p
- 144p
- 288p
- 432p (default)

Expert Settings
If necessary, use the expert settings to adapt the I-frame quality and the P-frame quality to specific requirements. The setting is based on the H.264 quantization parameter (QP).

GOP structure
Select the structure that you require for the group of pictures, depending on whether you place greater priority on having the lowest possible delay (IP frames only) or using as little bandwidth as possible.
Options are IP, IBP, and IBBP.
GOP is not available for megapixel cameras.

I-frame distance
This parameter allows you to set the intervals in which the I-frames will be coded. Auto means auto mode, whereby the video server inserts I-frames as necessary. Values range from 3 to 60. An entry of 3 indicates that I-frames are continuously generated. An entry of 4 indicates that only every fourth image is an I-frame, and so on; the frames in between are coded as P-frames. Note that the values supported depend on the GOP structure setting. For example, only even values are supported with IBP; if you have selected IBBP, only 3 or multiples of 3 are supported.

Min. P-frame QP
This parameter allows you to adjust the image quality of the P-frame and to define the lower limit for the quantization of the P-frames, and thus the maximum achievable quality of the P-frames. In the H.264-protocol, the Quantization Parameter (QP) specifies the degree of compression and thus the image quality for every frame. The lower the quantization of the P-frame (QP value), the higher the encoding quality (and thus the best image quality) and the lower the frame refresh rate depending on the settings for the maximum data rate under network settings. A higher quantization value results in low image quality and lower network load. Typical QP values are between 18 and 30.
The basic setting Auto automatically adjusts the quality to the settings for the P-frame video quality.

I/P-frame delta QP
This parameter sets the ratio of the I-frame quantization (QP) to the P-frame quantization (QP). For example, you can set a lower value for I-frames by moving the slide control to a negative value. Thus, the quality of the I-frames relative to the P-frames is improved. The total data load will increase, but only by the portion of I-frames. The basic setting Auto automatically adjusts to the optimum combination of movement and image definition (focus). To obtain the highest quality at the lowest bandwidth, even in the case of increased movement in the picture, configure the quality settings as follows:

1. Observe the coverage area during normal movement in the preview images.
2. Set the value for **Min. P-frame QP** to the highest value at which the image quality still meets your needs.
3. Set the value for **I/P-frame delta QP** to the lowest possible value. This is how to save bandwidth and memory in normal scenes. The image quality is retained even in the case of increased movement since the bandwidth is then filled up to the value that is entered under **Maximum bit rate**.

Default
Click **Default** to return the profile to the factory default values.

14.13 Encoder Streams

Property
Select one of the H.264 standards for each stream.

Stream 1 (recording)	Options are: - H.264 MP SD - H.264 MP 720p25/30 Fixed - H.264 MP 1080p25/30 Fixed; - H.264 MP 720p50/60 Fixed

Note: In order to select the option “H.264 MP 720p50/60 Fixed” here, you must set the **Max. frame rate** field in the Advanced Mode: Camera >Installer Menu to “H.264 MP 720p50/60 Fixed” first.

Note (for dynamic models only): In order to select the option “H.264 MP 1080p25/30 Fixed” here, you must set the **Max.frame rate** field in the Advanced Mode: Camera >Installer Menu to “H.264 MP 1080p25/30 Fixed” first.

Stream 2	Options vary depending on Stream 1 selection.
	Options with “H.264 MP 1080p25/30 Fixed” selected for Stream 1: – Copy Stream 1 – H.264 MP SD – H.264 MP 720p8/10 Fixed – H.264 MP 1080p4/5 Fixed – H.264 MP upright (cropped) – H.264 MP D1 4:3 (cropped)
	Options with “H.264 MP 720p50/60 Fixed” selected for Stream 1: – Copy Stream 1 – H.264 MP SD – H.264 MP 720p6/7 Fixed – H.264 MP upright (cropped) – H.264 MP D1 4:3 (cropped)
	Options with “H.264 MP 720p25/30 Fixed” selected for Stream 1: – H.264 MP SD – H.264 MP 720p25/30 Fixed – H.264 MP upright (cropped) – H.264 MP D1 4:3 (cropped) – H.264 MP 1280x960 (cropped)
	Option with “H.264 MP SD” selected for Stream 1: H.264 MP SD

Non-recording profile
Select one of the following profiles for each stream:

Preview
Click the **Preview** button to open a small static preview window for each stream. To enlarge the preview and view live video, click the **1:1 Live View** button.

JPEG stream
Select the resolution, frame rate, and image quality parameters for the M-JPEG stream.
- **Resolution**: Select the appropriate resolution.
- **Max. frame rate**: Select one of the following frame rates to be the maximum: 5, 10, 15, 20, 25, or 30 ips.
- **Picture quality**: This setting allows you to adjust the image quality. Use the slide bar to choose a quality between Low and High.

Note: The M-JPEG frame rate can vary depending on system loading.

See also
- *Encoder Profile, page 96*

14.14 Privacy Masks

Privacy Masking is used to block out a specific area of a scene from being viewed. Masks can be configured as a gray area with four corners. You may define a total of 24 privacy masks.
To add a privacy mask to a scene:

1. Navigate to the scene in which you want to apply a privacy mask.
   Click the View Control link.
   Use the PTZ controls to view the scene.
2. Select the privacy mask number to apply to the scene.
3. The preview window displays a gray rectangle in the scene.
4. Click the Enabled check box to activate the privacy mask.
5. The privacy mask in the preview window changes to orange to indicate that the mask will appear in the video streams on the **LIVE** page.
6. Place the cursor inside the privacy mask area in the preview window; then click and drag to move the privacy mask.
7. Place the cursor on a corner or on a vertex of the mask rectangle; then click and drag to expand or shrink the privacy mask area.
8. Click Set to save the privacy mask size and position.
   An image window displays the privacy mask.
9. To hide an individual mask, select the mask number and clear the Enabled check box.
10. To hide all masks from an image view, click the Disable Masks check box.
    Note: If you choose to hide all masks, you must enable each individual mask to show the mask in the scene.
11. To display IVA behind privacy masks, click the IVA behind masks check box.

Notice!
Draw the mask 10% larger than the object to ensure that the mask completely covers the object as the camera zooms in and out. Click the Zoom threshold box.
Draw the mask at 50% optical zoom or less for improved masking performance.

Notice!
The camera disables the Privacy Mask feature if the orientation of the camera is set to Inverted. Refer to *Installer Menu, page 94* for orientation settings.

See also
– *Installer Menu, page 94*

14.15 Picture Settings

Current mode
Select one of the pre-programmed user modes, optimized with the best settings for a variety of typical applications, that best defines the environment in which the camera is installed.
– Outdoor – General day-to-night changes with sun highlights and street lighting
– Indoor – Ideal mode for indoor applications where lighting is constant and not changing
– Low light – Optimized for sufficient details at low light
– Motion – Monitoring traffic or fast moving objects; motion artifacts are minimized
– Vibrant – Enhanced contrast color reproduction and sharpness
The default setting depends on whether the camera is an in-ceiling camera or a pendant camera.

Customize the mode, if necessary, for the specific requirements of the site by selecting different values for the fields below.
In this case, the name of the user mode changes to “Custom.”

White Balance
Adjusts the color settings to maintain the quality of the white areas of the image.
- **ATW**: allows the camera to continuously adjust color reproduction.
- **AWB Hold**: places the ATW on hold and saves the color settings.
- **Extended ATW** (default): allows the camera to constantly adjust for optimal color reproduction.
- **Manual**: Red and Blue gain can be manually set to a desired position.
- **Sodium Lamp Auto:** Automatically adjusts for sodium vapor light to restore objects to their original color.
- **Sodium Lamp:** Optimizes the sodium vapor light to restore objects to their original color.

Red Gain
The red gain adjustment offsets the factory white point alignment (reducing red introduces more cyan).

Blue Gain
The blue gain adjustment offsets the factory white point alignment (reducing blue introduces more yellow). It is only necessary to change the white point offset for special scene conditions.

Saturation
The percentage of light or color in the video image (HD only). Values range from 60% to 200%; the default is 110%.

Color hue
The degree of color in the video image (HD only). Values range from -14° to 14°; the default is 8°.

Gain control
Adjusts the automatic gain control (AGC). Automatically sets the gain to the lowest possible value needed to maintain a good picture.
- **AGC** (default): electronically brightens dark scenes, which may cause graininess in low light scenes.
- **Fixed**: no enhancement. This setting disables the Max. Gain Level option.
  If you select this option, the camera makes the following changes automatically:
  - **Night Mode**: switches to Color
  - **Auto Iris**: switches to Constant

Fixed Gain
Use the slide to select the desired number for fixed gain. The default is 2.

Maximum Gain Level
Controls the maximum value the gain can have during AGC operation. To set the maximum gain level, choose from:
- **Normal**
- **Medium**
- **High** (default)

AE-response speed
Select the speed of the response of auto exposure. Options are Super slow, Slow, Medium (default), Fast.

Sharpness
Adjusts the sharpness of the picture. To set the sharpness, use the slider to select a number. The default is 12.

Shutter Mode

- **Off**: turns the Auto SensUP Off.
- **AutoSensUp**: increases camera sensitivity by increasing the integration time on the camera. This is accomplished by integrating the signal from a number of consecutive video frames to reduce signal noise.
  If you select this option, the camera makes the following change automatically:
  - **Auto Iris**: switches to Constant
  - **Shutter**: is disabled

Shutter

Adjusts the electronic shutter speed (AES). Controls the time period for which light is gathered by the collecting device. The default setting is 1/60 second for NTSC and 1/50 for PAL cameras. The range of settings is from 1/1 to 1/10000.

Auto SensUP limit

This is the maximum shutter speed when Auto SensUP (Frame Integration) is active. The default is 1/4. The range of settings is from 1/4 to 1/30.

Shutter limit

The camera tries to hold this shutter value as long as sufficient ambient light is available in the scene.

Settings range from 1/1 to 1/10000. The default value is 1/2000 for all modes except 'Motion' (default 1/500).

Backlight compensation

Optimizes the video level for the selected area of the image. Parts outside this area may be underexposed or overexposed. Select On to optimize the video level for the central area of the image. The default setting is Off.

High Sensitivity

Adjusts the level of intensity or lux within the image (HD only). Select from Off or On.
Note: In Black and White (Night) mode / low light situations, High Sensitivity turns on automatically.

Stabilization

This feature is ideal for cameras mounted on a pole or mast, or on another location that shakes frequently.

Select On to activate the video stabilization feature (if available on your camera) that reduces camera shake in both the vertical and horizontal axis. The camera compensates for the movement of the image by up to 2% of the image size.

Select Auto to activate the feature automatically when the camera detects vibration.

Select Off to deactivate the feature.

Note: This feature is not available on 20x models.

High dynamic range

Select On to activate wide dynamic range, which improves image reproduction in extreme high-contract scenes.

Select Off to deactivate the feature.

Select Enhanced to activate high dynamic range when the camera detects an extreme high-contract scene. The camera makes multiple, simultaneous exposures of the same scene to capture details in both bright and dark parts of the scene.

Night mode

Selects night mode (B/W) to enhance lighting in low light scenes. Select from the following options:

- **Monochrome**: Forces the camera to stay in Nigh Mode and transmit monochrome images.
- **Color**: The camera does not switch to Night Mode regardless of ambient light conditions.

– **Auto** (default): The camera switches out of Night Mode after the ambient light level reaches a pre-defined threshold.

Night mode threshold
Adjusts the level of light at which the camera automatically switches out of night mode (B/W) operation. Select a value between 10 and 55 (in increments of 5), where 10 is earlier and 55 is later.

Noise Reduction
Turns on the 2D and 3D noise reduction feature.

Noise Reduction Level
Adjusts the noise level to the appropriate level for shooting conditions. Select a value between 1 and 5.

Anti-fog
Select Auto to configure the camera for automatic Anti-fog mode, which activates when the video analytics in the camera detect fog and add light to the video image (and then deactivates when the fog clears or the scene changes).
Select On to activate Anti-fog mode on a continuous basis. The camera operates in this mode until a user deactivates the mode. The video image on the **LIVE** page may become lighter.
Select Off to deactivate the mode. The video image on the **LIVE** page may become darker.

14.16 Lens Settings

Autofocus
Continuously adjusts the lens automatically to the correct focus for the sharpest picture.
– **One Push** (default; commonly called “Spot Focus”): activates the Auto Focus feature after the camera stops moving. Once focused, Auto Focus is inactive until the camera is moved again.
– Auto Focus: Auto Focus is always active.
– Manual: Auto Focus is inactive.

Focus polarity
– **Normal (default)**: focus controls operate normally.
– **Reverse**: focus controls are reversed.

Focus speed
Use the slider (from 1 to 8) to control how fast the Auto focus will readjust when the focus becomes blurred.

Auto iris
Automatically adjusts the lens to allow the correct illumination of the camera sensor. This type of lens is recommended for use where there are low light or changing light conditions.
– **Constant** (default): camera constantly adjusts to varying light conditions (default).
  If you select this option, the camera makes the following changes automatically:
  – **Gain Control**: switches to AGC.
  – **Shutter Speed**: switches to default.
– **Manual**: camera must be manually adjusted to compensate for varying light conditions.

Iris polarity
Capability to reverse the operation of the iris button on the controller.
– **Normal** (default): iris controls operate normally.
– **Reverse**: iris controls are reversed.

Auto iris level
Increases or decreases brightness according to the amount of light. Type a value between 1 and 15.

Maximum zoom speed
Controls the zoom speed.

Zoom polarity
Capability to reverse the operation of the zoom button on the controller.
– **Normal** (default): zoom controls operate normally.
– **Reverse**: zoom controls are reversed.

Digital zoom
Digital zoom is a method of decreasing (narrowing) the apparent angle of view of a digital video image. It is accomplished electronically, without any adjustment of the camera's optics, and no optical resolution is gained in the process. Select Off to disable or On to enable this feature. The default setting is On.

14.17 PTZ Settings

Auto pan speed
Continuously pans the camera at a speed between right and left limit settings. Type a value between 1 and 60 (expressed in degrees), inclusive. The default setting is 30.

Inactivity
Selects the time period the dome must be not controlled until the inactivity event will be executed.
– **Off** (default): camera remains on a current scene indefinitely.
– **Scene 1**: camera returns to Preset 1.
– **Previous Aux**: camera returns to the previous activity.

Inactivity period
Determines the behavior of the dome when the control for dome is inactive. Select a time period from the pull-down list (3 sec. - 10 min.). The default setting is 2 minutes.

Auto pivot
The Auto pivot tilts the camera through the vertical position as the camera is rotated to maintain the correct orientation of the image. Set the Auto Pivot to On (default) to automatically rotate the camera 180º when following a subject traveling directly beneath the camera. To disable this feature, click Off.

Freeze frame
Select On to freeze the image while the camera moves to a predetermined scene position.

Turbo mode
Select On to set the camera in Turbo mode when an operator pans or tilts the camera manually. In this mode, the camera can pan at a maximum of 400° per second, and tilt at a maximum of 300° per second.

Tracker Zoom Threshold [%]
This parameter defines the zoom ratio percentage to which the camera zooms out after Tracker Timeout stops tracking, or if Intelligent Tracking loses visibility of an object being tracked. This allows the camera to re-acquire the target in a new wider FoV. Settings range from 0 to 100. The default is 50.

Tracker Timeout [sec]
This parameter allows the camera to stop tracking motion of certain objects, such as a tree or a flag swaying in the wind, in a confined area after the specified number of seconds. Settings range from 5 to 120. The default is 30.

Auto pan left limit
Sets the left Auto Pan limit of the camera. Use the preview window to move the camera to the left pan limit and click the button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

Auto pan right limit
Sets the right Auto Pan limit of the camera. Use the preview window to move the camera to the right pan limit and click the button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

Tilt up limit
Sets the upper tilt limit of the camera. Use the preview window to move the camera to the tilt limit and click the button.

Tilt limits
Click the Reset button to clear the upper tilt limit.

Tour A / Tour B
Starts and stops the recording of a recorded (guard) tour.
The camera can make up to two (2) recorded tours. A recorded tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds, and other lens setting changes. The tour does not capture camera video during the recording of the tour.
Note 1: You can save a total of 15 minutes of recorded actions between the two tours.
To record a tour:
1. Click the Start Recording button. The system prompts you to overwrite the existing tour.
2. Click Yes to overwrite the existing tour movements.
3. Click the View Control link, under the image cameo, to access the directional and zoom controls.
4. Use the View Control dialog box to make the necessary camera movements.
5. Click the Stop Recording button to save all actions.

North point
Click the Set button to overwrite the existing North point.
Click the Defaults button to reset the North point to factory defaults.

14.18 Scenes and Tours

The camera can store up to 256 preset scenes. You can define the individual scenes that comprise a **preposition tour**.
You define individual preposition scenes, then use these scenes to define the preposition tour. The tour starts from the lowest scene number in the tour and progresses sequentially to the highest scene number in the tour. The tour displays each scene for a specified dwell time before advancing to the next scene.
By default, all scenes are part of the preposition tour unless removed.

To define and edit an individual scene:
1. Click the View Control link.
   Use the PTZ controls to move the camera into position.
   Navigate to the scene that you want to define as a preposition.
2. Click the Add scene (“+”) button to define the preposition.
3. Select a number for the scene, from 1 to 256.
4. Type an optional name for the scene, up to 20 characters long.
5. Click OK to save the scene to the Preposition list.
   The asterisk (*) to the left of the scene name indicates the scene is part of the preposition tour.
6. To delete a scene from the list, select the scene and click the Delete scene (“X”) button.
7. To overwrite an existing scene:
   Click the View Control link to access the PTZ controls.
   Use the PTZ controls to navigate to the new scene.

Click the scene in the Preposition list you want to overwrite.
Click the Overwrite scene button to apply the new scene to the existing preposition.
To change the name of the scene, double-click the scene in the list. Then, change the name in the Edit Scene dialog box and click OK.

8. To view a scene in the preview window, select the scene in the list and click the Show scene button.
9. To view a scene from the LIVE page:
   Click a scene number below the PTZ controls on the View Control tab.
   OR
   Use the keypad and the Show Shot button on the Aux Control tab.

To define a preposition tour:

1. Create the individual scenes.
   By default, all scenes in the Preposition list are in the preposition tour.
2. To remove a scene from the tour, select the scene in the list and uncheck the Include in standard tour box.
3. Select a dwell time from the Standard preposition tour drop-down list.
4. To start the preposition tour:
   Return to the LIVE page.
   Click the Aux Control tab.
   Type **8** in the input box and click the Aux On button.
5. To stop the tour, type **8** and click the Aux Off button.

14.19 Sectors

Sector

The camera's pan capability is 360° and is divided into 16 equal sectors. This section allows you to apply a title for each sector and to designate any sectors as a Blanked Sector.

To define a title for sectors:

1. Place the cursor in the input box to the right of the sector number.
2. Type a title for the sector, up to 20 characters long.
3. To blank the sector, click the check box to the right of the sector title.

14.20 Miscellaneous

Fast address

This parameter allows the appropriate camera to be operated via the numerical address in the control system. Enter a number between 0000 and 9999, inclusive, to identify the camera.
Note: This is required for identifying cameras connected through a decoder such as the VIDEOJET decoder 3000 (VJD-3000).

14.21 Logs

To save the log file information:

1. Click Download to obtain the log information.
2. Click Save.
3. Navigate to the directory in which you want to store the log information.
4. Type a name for the log file and click Save.

14.22 Audio

You can set the gain of the audio signals to suit your specific requirements. The current video image is shown in the small window next to the slide controls to help you check the audio source and improve assignments. Your changes are effective immediately.

If you connect via Web browser, you must activate the audio transmission on the **LIVE Functions** page. (See *LIVE Functions, page 93*.) For other connections, the transmission depends on the audio settings of the respective system.

Audio
The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approximately 80 kbps for each connection. If you do not want any audio data to be transmitted, select **Off**.

Input volume
You can set the input volume with the slider (from 0 to 31, with 0 as the default).

Line In
You can set the line input gain with the slider (from 0 (zero) to 79, with 0 as the default). Make sure that the display does not go beyond the green zone during modulation.

Line Out
You can set the line output gain with the slider (from 0 (zero) to 79, with 0 as the default). Make sure that the display does not go beyond the green zone during modulation.

Recording format
Select a format for audio recording. Select L16 or AAC (Advanced Audio Coding) if you want better audio quality with higher sampling rates. Note that the L16 standard requires approximately eight times the bandwidth of the format G.711.

14.23 Pixel Counter

Counts the number of pixels in a defined image area. The pixel counter allows the installer to easily verify that the camera installation fulfills any regulatory or specific customer requirements, for example, calculating the pixel resolution of the face of a person passing a doorway monitored by the camera.

14.24 Advanced Mode: Recording

14.25 Storage Management

You can record the images from the camera on various local storage media (user-supplied SD, SDHC, or SDXC memory card) or on an appropriately configured iSCSI system.
It is also possible to let the VRM Video Recording Manager control all recording with accessing an iSCSI system. This is an external program for configuring recording tasks for video servers. For further information please contact your local customer service at Bosch Security Systems Inc.

Device manager
If you activate the **Managed by VRM** option in this screen, the VRM Video Recording Manager will manage all recording and you will not be able to configure any further settings here.

Caution!
Activating or deactivating VRM causes the current settings to be lost; they can only be restored through reconfiguration.

Recording media
Select the required recording media here so that you can then activate them and configure the recording parameters.

iSCSI Media
If you want to use an **iSCSI system** as a recording medium, you must set up a connection to the required iSCSI system and set the configuration parameters.

Notice!
The iSCSI storage system selected must be available on the network and completely set up. Amongst other things, it must have an IP address and be divided into logical drives (LUN).

1. Enter the IP address of the required iSCSI destination in the **iSCSI IP address** field.
2. If the iSCSI destination is password protected, enter this into the **Password** field.
3. Click the **Read** button. The connection to the IP address will be established. In the **Storage overview** field, you can see the corresponding logical drives.

Local Media
The supported local recording media are displayed in the Storage overview field.

Activating and Configuring Storage Media
The storage overview displays the available storage media. You can select individual media or iSCSI drives and transfer these to the **Managed storage media** list. You can activate the storage media in this list and configure them for storage.

Caution!
Each storage medium can only be associated with one user. If a storage medium is already being used by another user, you can decouple the user and connect the drive with the camera. Before decoupling, make absolutely sure that the previous user no longer needs the storage medium.

1. In the **Recording media** section, click the **iSCSI Media** and **Local Media** tabs to display the applicable storage media in the overview.
2. In the **Storage overview** section, double-click the required storage medium, an iSCSI LUN or one of the other available drives. The medium is then added to the **Managed storage media** list. In the **Status** column, newly added media are indicated by the status **Not active**.
3. Click the **Set** button to activate all media in the **Managed storage media** list. In the **Status** column, these are indicated by the status **Online**.
4. Check the box in the **Rec. 1** or **Rec. 2** to specify which data stream should be recorded on the storage media selected. **Rec. 1** stores Stream 1, **Rec. 2** stores Stream 2. This means that you can record the standard data stream on a hard drive and record alarm images on the mobile CF card, for example.
5. Check the boxes for the **Overwrite older recordings** option to specify which older recordings can be overwritten once the available memory capacity has been used. **Recording 1** corresponds to Stream 1, **Recording 2** corresponds to Stream 2.

Caution!
If older recordings are not allowed to be overwritten when the available memory capacity has been used, the recording in question will be stopped. You can specify limitations for overwriting old recordings by configuring the retention time (see *Maximum Retention Time, page 110*).

Formatting Storage Media
You can delete all recordings on a storage medium at any time.

Caution!
Check the recordings before deleting and back up important sequences on the computer's hard drive.

1. Click a storage medium in the **Managed storage media** list to select it.
2. Click the **Edit** button below the list. A new window will open.
3. Click the **Formatting** button to delete all recordings in the storage medium.
4. Click **OK** to close the window.

Deactivating Storage Media
You can deactivate any storage medium from the **Managed storage media** list. It is then no longer used for recordings.
1. Click a storage medium in the **Managed storage media** list to select it.
2. Click the **Remove** button below the list. The storage medium is deactivated and removed from the list.

14.26 Recording Profiles

You can define up to ten different recording profiles. You will then use these recording profiles in the recording scheduler, where they are linked with the individual days and times (see *Recording Scheduler, page 111*).

Notice!
You can change or add to the recording profile description on the tabs on the **Recording Scheduler** page (see *Recording Scheduler, page 111*).

1. Click one of the tabs to edit the corresponding profile.
2. If necessary, click the **Default** button to return all settings to their default values.
3. Click the **Copy Settings** button if you want to copy the currently visible settings to other profiles. A new window will open and you can select the profiles in which you want to copy the settings.
4. For each profile, click the **Set** button to save the settings in the unit.

Standard recording
Here you can select the mode for standard recordings.
If you select **Continuous**, the recording proceeds continuously. If the maximum memory capacity is reached, older recordings will automatically be overwritten. If you select the **Pre-alarm** option, recording will only take place in the pre-alarm time, during the alarm and during the set post-alarm time.
If you select **Off**, no automatic recording takes place.

Caution!
You can specify limitations for overwriting older recordings in **Continuous** mode by configuring the retention time (see *Maximum Retention Time, page 110*).

Standard profile
From this field, you can select the encoder profile to be used for recording (see *Encoder Profile, page 96*).

Notice!
The recording profile can deviate from the standard setting **Active profile** and is only used during an active recording.

Pre-alarm time
You can select the required pre-alarm time from the list field.

Post-alarm time
You can select the required post-alarm time from the list field.

Post-alarm profile
You can select the encoder profile to be used for recording during the post-alarm time (see *Encoder Profile, page 96*).
The **Standard profile** option adopts the selection at the top of the page.

Alarm input / Analysis alarm / Video loss alarm
Here you can select the alarm sensor that is to trigger a recording.

Virtual alarm
Here you can select the virtual alarm sensors that are to trigger a recording, via RCP+ commands or alarm scripts, for example.

Notice!
For more information, please see the Alarm Task Script Language document and the RCP+ documentation. These documents can be found on the product CD supplied.

Recording includes
You can specify whether, in addition to video data and metadata (for example alarms, VCA data and serial data) should also be recorded. Including metadata could make subsequent searches of recordings easier but it requires additional memory capacity.

Caution!
Without metadata, it is not possible to include video content analysis in recordings.

14.27 Maximum Retention Time

You can specify the retention times for recordings. If the available memory capacity of a medium has been used, older recordings are only overwritten if the retention time entered here has expired.

Notice!
Make sure that the retention time corresponds with the available memory capacity. A rule of thumb for the memory requirement is as follows: 1 GB per hour retention time with 4CIF for complete frame rate and high image quality.

Maximum Retention Time
Enter the required retention time in hours or days for each recording. **Recording 1** corresponds to Stream 1, **Recording 2** corresponds to Stream 2.

14.28 Recording Scheduler

The recording scheduler allows you to link the created recording profiles with the days and times at which the camera's images are to be recorded in the event of an alarm.
You can link any number of 15-minute intervals with the recording profiles for each day of the week. Moving the mouse cursor over the table displays the time below it. This aids orientation.
In addition to the normal weekdays, you can define holidays that are not in the standard weekly schedule on which recordings are to apply. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

1. Click the profile you want to link in the **Time periods** field.
2. Click in a field in the table, hold down the mouse button and drag the cursor over all the periods to be assigned to the selected profile.
3. Use the right mouse button to deselect any of the intervals.
4. Click the **Select All** button to link all time intervals to the selected profile.
5. Click the **Clear All** button to deselect all of the intervals.
6. When you are finished, click the **Set** button to save the settings in the unit.

Holidays

You can define holidays that are not in the standard weekly schedule on which recordings are to apply. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

1. Click the **Holidays** tab. Any days that have already been selected will be shown in the table.
2. Click the **Add** button. A new window will open.
3. Select the desired date from the calendar. You can select several consecutive calendar days by holding down the mouse button. These will later be displayed as a single entry in the table.
4. Click **OK** to accept the selection. The window will close.
5. Assign the individual holidays to the recording profiles, as described above.

Deleting Holidays

You can delete holidays you have defined yourself at any time.

1. Click the **Delete** button. A new window will open.
2. Click the date you wish to delete.
3. Click **OK**. The item will be deleted from the table and the window will close.
4. The process must be repeated for deleting additional days.

Time periods

You can change the names of the recording profiles.

1. Click a profile and then the **Rename** button.
2. Enter your chosen name and then click the **Rename** button again.

Activating the Recording

After completing configuration you must activate the recording scheduler and start the recording. Once recording is underway, the **Recording Profiles** and **Recording Scheduler** pages are deactivated and the configuration cannot be modified.
You can stop the recording activity at any time and modify the settings.

1. Click the **Start** button to activate the recording scheduler.
2. Click the **Stop** button to deactivate the recording scheduler. Running recordings are interrupted and the configuration can be changed.

Recording status

The graphic indicates the recording activity of the camera. You will see an animated graphic while recording is taking place.

14.29 Recording Status

Certain details on the recording status are displayed here for information purposes. You cannot change any of these settings.

If an error occurs during recording, the Status line for the recording may display informational icons that provide additional information when you point to them with your mouse.

14.30 Advanced Mode: Alarm

14.31 Alarm Connections

You can select how the camera responds to an alarm. In the event of an alarm, the unit can automatically connect to a pre-defined IP address. You can enter up to ten IP addresses to which the camera will connect in sequence in the event of an alarm, until a connection is made.

Connect on alarm
Select **On** so that the camera automatically connects to a predefined IP address in the event of an alarm.
By setting **Follows input 1** the unit maintains the connection that has been automatically established for as long as an alarm exists on alarm input 1.

Notice!
In the default setting, Stream 2 is transmitted for alarm connections. Bear this fact in mind when assigning the profile (see *Encoder Profile, page 96*).

Number of destination IP address
Specify the numbers of the IP addresses to be contacted in the event of an alarm. The unit contacts the remote stations one after the other in the numbered sequence until a connection is made.

Destination IP address
For each number, enter the corresponding IP address for the desired remote station.

Destination password
If the remote station is password protected, enter the password here.
In this page, you can save a maximum of ten destination IP addresses and hence up to ten passwords for connecting to remote stations. If connections to more than ten remote stations are to be possible, for example when initiating connections via higher-ranking systems such as

VIDOS or Bosch Video Management System, you can store a general password here. The camera can use this general password to connect to all remote stations protected with the same password. In this case, proceed as follows:

1. Select **10** from the **Number of destination IP address** list field.
2. Enter the address **0.0.0.0** in the **Destination IP address** field.
3. Enter your chosen password in the **Destination password** field.
4. Define this password as the **user** password for all remote stations to which a connection is to be possible.

Notice!
If you enter the destination IP address 0.0.0.0 for destination 10, this address will no longer be used for the tenth attempt at automatic connection in the event of an alarm. The parameter is then used only to save the general password.

Video transmission
If the unit is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.

Caution!
Please note that in some circumstances, a larger bandwidth must be available on the network for additional video images in the event of an alarm, in case Multicast operation is not possible. To enable Multicast operation, select the **UDP** option for the **Video transmission** parameter here and on the **Network** page (see *Network Access, page 122*).

Stream
Select the number of the stream from the drop-down list.

Remote port
Depending on the network configuration, select a browser port here. The ports for HTTPS connections will be available only if the **On** option is selected in the **SSL encryption** parameter.

Video output
If you know which unit is being used as the receiver, you can select the analog video output to which the signal should be switched. If the destination unit is unknown, it is advisable to select the **First available** option. In this case, the image is placed on the first free video output. This is an output on which there is no signal. The connected monitor only displays images when an alarm is triggered. If you select a particular video output and a split image is set for this output on the receiver, you can also select from **Decoder** the decoder in the receiver that is to be used to display the alarm image.

Notice!
Refer to the destination unit documentation concerning image display options and available video outputs.

Decoder
Select a decoder of the receiver to display the alarm image. The decoder selected has an impact on the position of the image in a split screen. For example, you can specify via a VIP XD that the upper-right quadrant should be used to display the alarm image by selecting decoder 2.

SSL encryption
The data for the connection, for example the password, can be securely transmitted with SSL encryption. If you have selected the **On** option, only encrypted ports are offered in the **Remote port** parameter.

Notice!
Please note that the SSL encryption must be activated and configured at both ends of a connection. This requires the appropriate certificates to be uploaded onto the camera.

You can activate and configure encryption of the media data (video and metadata) on the **Encryption** page (see *Encryption, page 128*).

Auto-connect
Select the **On** option to automatically re-establish a connection to one of the previously specified IP addresses after each reboot, after a connection breakdown or after a network failure.

Notice!
In the default setting, Stream 2 is transmitted for automatic connections. Bear this fact in mind when assigning the profile (see *Encoder Profile, page 96*).

Audio
Select On to activate audio alarms.

14.32 VCA

The camera has integrated video content analysis (VCA), which can detect and analyze changes in the signal on the basis of image processing. Such changes can be due to movements in the camera's field of view.
You can select various VCA configurations and adapt these to your application as required. The Silent MOTION+ Configuration is active by default. In this configuration, metadata is created to facilitate searches of recordings; however, no alarm is triggered.

1. Select a VCA configuration and make the required settings.
2. If necessary, click the **Default** button to return all settings to their default values.

Intelligent DNR (Digital Noise Reduction)
IVA / VCA controls the iDNR feature, which reduces noise based on motion activity in the scene. When there is no motion in the preset scene, noise reduction is increased. When there is motion detected in the preset scene, noise reduction is decreased to reduce bandwidth and optimize storage space.
To disable the iDNR feature, select the OFF option in the **VCA configuration** field.
To enable iDNR, select a Profile # (1 – 16) or Silent VCA in the **VCA configuration** field. If you select a specific profile, you must also select MOTION+ in the **Analysis Type** field.

VCA Profiles
You can configure two profiles with different VCA configurations. You can save profiles on your computer's hard drive and load saved profiles from there. This can be useful if you want to test a number of different configurations. Save a functioning configuration and test new settings. You can use the saved configuration to restore the original settings at any time.

Notice!

If computing power becomes short, the highest priority is always the live images and recordings. This can lead to impairment of the video content analysis. You should therefore observe the processor load and optimize the encoder settings or the video content analysis settings as necessary.

1. Select a VCA profile and enter the required settings.
2. If necessary, click the **Default** button to return all settings to their default values.
3. Click the **Save...** button to save the profile settings to another file. A new window is opened, in which you can specify where you want to save the file and what name you want to save it under.
4. Click the **Load...** button to load a saved profile. A new window opens in which you can select the profile file and specify where to save the file.

VCA configuration

Select one of the profiles here to activate it or edit it.

You can rename the profile.

1. To rename the file, click the icon to the right of the list field and enter the new profile name in the field.
2. Click the icon again. The new profile name is saved.

Preset

Select Off or Test.

Alarm status

The alarm status is displayed here for information purposes. This means you can check the effects of your settings immediately.

Aggregation times

Use the slider (from 0 (zero) to 20 (0 is the default) to select the aggregation times.

Analysis type

Select the required analysis algorithm. By default, only **MOTION+** is available – this offers a motion detector and essential recognition of tampering.

Notice!

Additional analysis algorithms with comprehensive functions such as IVMD and IVA are available from Bosch Security Systems Inc.

If you select one of these algorithms, you can set the corresponding parameters here directly. You can find information on this in the relevant documents on the product CD supplied.

Metadata is always created for a video content analysis, unless this was explicitly excluded. Depending on the analysis type selected and the relevant configuration, additional information overlays the video image in the preview window next to the parameter settings. Options are: MOTION+, IVA 5.6, IVA 5.6 Flow. With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.

Notice!

On the **LIVE Functions** page, you can also enable additional information overlays for the **LIVE** page (see *LIVE Functions, page 93*).

Motion detector (MOTION+ only)

For the detector to function, the following conditions must be met:

– Analysis must be activated.

– At least one sensor field must be activated.
– The individual parameters must be configured to suit the operating environment and the desired responses.
– The sensitivity must be set to a value greater than zero.

Caution!
Reflections of light (off glass surfaces, etc.), switching lights on or off or changes in the light level caused by cloud movement on a sunny day can trigger unintended responses from the motion detector and generate false alarms. Run a series of tests at different times of the day and night to ensure that the video sensor is operating as intended.
For indoor surveillance, ensure constant lighting of the areas during the day and at night.

Sensitivity (MOTION+ only)
The basic sensitivity of the motion detector can be adjusted for the environmental conditions to which the camera is subject.
The sensor reacts to variations in the brightness of the video image. The darker the observation area, the higher the value that must be selected.

Minimum object size (MOTION+ only)
You can specify the number of sensor fields that a moving object must cover to generate an alarm. This is to prevent objects that are too small from triggering an alarm.
A minimum value of **4** is recommended. This value corresponds to four sensor fields.

Debounce time 1 s (MOTION+ only)
The debounce time is intended to prevent very brief alarm events from triggering individual alarms. If the Debounce time 1 s option is activated, an alarm event must last at least one second to trigger an alarm.

Select Area (MOTION+ only)
The areas of the image to be monitored by the motion detector can be selected. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually. If you wish to exclude particular regions of the camera's field of view from monitoring due to continuous movement (by a tree in the wind, etc.), the relevant fields can be deactivated.

▸ Click **Select Area** to configure the sensor fields. A new window will open.
1. If necessary, click **Clear All** first to clear the current selection (fields marked yellow).
2. Left-click the fields to be activated. Activated fields are marked yellow.
3. If necessary, click **Select All** to select the entire video frame for monitoring.
4. Right-click any fields you wish to deactivate.
5. Click **OK** to save the configuration.
6. Click the close button **X** in the window title bar to close the window without saving the changes.

Tamper detection
You can reveal the tampering of cameras and video cables by means of various options. Run a series of tests at different times of the day and night to ensure that the video sensor is operating as intended.

Notice!
The options for tamper detection can only be set for fixed cameras. Dome cameras or other motorized cameras cannot be protected in this manner as the movement of the camera itself causes changes in the video image that are too great.

Sensitivity

Notice!
This and the following parameter are only accessible if the reference check is activated.

The basic sensitivity of the tamper detection can be adjusted for the environmental conditions to which the camera is subject.
The algorithm reacts to the differences between the reference image and the current video image. The darker the observation area, the higher the value that must be selected.

Trigger delay (s)
You can set delayed alarm triggering. The alarm is only triggered after a set time interval in seconds has elapsed and then only if the triggering condition still exists. If the original condition has been restored before this time interval elapses, the alarm is not triggered. This allows you to avoid false alarms triggered by short-term changes, for example cleaning activities in the direct field of vision of the camera.

Global change
You can set how large the global change in the video image must be for an alarm to be triggered. This setting is independent of the sensor fields selected under **Select Area**. Set a high value if fewer sensor fields need to change to trigger an alarm. With a low value, it is necessary for changes to occur simultaneously in a large number of sensor fields to trigger an alarm.
This option allows you to detect, independently of motion alarms, manipulation of the orientation or location of a camera resulting from turning the camera mount bracket, for instance.

Global change
Activate this function if the global change, as set with the **Global change** slide control, should trigger an alarm.

Scene too bright
Activate this function if tampering associated with exposure to extreme light (for instance, shining a flashlight directly on the lens) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too dark
Activate this function if tampering associated with covering the lens (for instance, by spraying paint on it) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too noisy
Activate this function if tampering associated with EMC interference (noisy scene as the result of a strong interference signal in the vicinity of the video lines), as an example, should trigger an alarm.

Reference Check
You can save a reference image that is continuously compared with the current video image. If the current video image in the marked areas differs from the reference image, an alarm is triggered. This allows you to detect tampering that would otherwise not be detected, for example if the camera is turned.

1. Click **Reference** to save the currently visible video image as a reference.
2. Click **Select Area** and select the areas in the reference image that are to be monitored.
3. Check the box **Reference check** to activate on-going matching. The stored reference image is displayed in black and white below the current video image, and the selected areas are marked in yellow.

4. Select the **Disappearing edges** or **Appearing edges** option to specify the reference check once again.

Disappearing edges
The area selected in the reference image should contain a prominent structure. If this structure is concealed or moved, the reference check triggers an alarm. If the selected area is too homogenous, so that concealing and moving the structure would not trigger an alarm, then an alarm is triggered immediately to indicate the inadequate reference image.

Appearing edges
Select this option if the selected area of the reference image includes a largely homogenous surface. If structures appear in this area, then an alarm is triggered.

Select Area
You can select the image areas in the reference image that are to be monitored. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually.

Notice!
Select only those areas for reference monitoring in which no movement takes place and that are always evenly lit, as false alarms could otherwise be triggered.

1. Click **Select Area** to configure the sensor fields. A new window will open.
2. If necessary, click **Clear All** first to clear the current selection (fields marked yellow).
3. Left-click the fields to be activated. Activated fields are marked yellow.
4. If necessary, click **Select All** to select the entire video frame for monitoring.
5. Right-click any fields you wish to deactivate.
6. Click **OK** to save the configuration.
7. Click the close button **X** in the window title bar to close the window without saving the changes.

14.33 Virtual Masks

Virtual masks allow users to mask parts of the scene which should not be considered for flow analysis to trigger Intelligent Tracking. This allows users to mask background motion in the scene such as moving trees, pulsating lights, busy roads, etc.
To create a virtual mask:
1. Select the number of the Virtual mask. In the video preview window, a dark grey rectangle appears with the text “Mask *x*,” where ‘x’ is the number of the mask.
2. Select the mask with your mouse. Move the mouse to position the mask over the area of the view that you want to mask, and then click “Set.” The text “VM Configuration active!” appears in the View Control window.
3. Click Enabled to enable the virtual mask. The rectangle that represents the mask in the preview window becomes red. The text “Virtual Masks: ENABLED” appears in the View Control window.
To disable virtual masks:
Click the Disable masks checkbox. The text “Virtual Masks: DISABLED” appears in the View Control window.

14.34 Audio Alarm

The camera can create alarms on the basis of audio signals. You can configure signal strengths and frequency ranges in such a way that false alarms, for example due to machine noise or background noise, are avoided.

Notice!
First set up normal audio transmission before you configure the audio alarm here (see *Audio, page 106*).

Audio alarm
Select **On** if you want the device to generate audio alarms.

Name
The name makes it easier to identify the alarm in extensive video monitoring systems, for example with the VIDOS and Bosch Video Management System programs. Enter a unique and clear name here.

Caution!
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

Signal Ranges
You can exclude particular signal ranges in order to avoid false alarms. For this reason the total signal is divided into 13 tonal ranges (mel scale). Check or uncheck the boxes below the graphic to include or exclude individual ranges.

Threshold
Set up the threshold on the basis of the signal visible in the graphic. You can set the threshold using the slide control or, alternately, you can move the white line directly in the graphic using the mouse.

Sensitivity
You can use this setting to adapt the sensitivity to the sound environment. You can effectively suppress individual signal peaks. A high value represents a high level of sensitivity.

14.35 Alarm E-Mail

As an alternative to automatic connecting, alarm states can also be documented by e-mail. In this way it is possible to notify a recipient who does not have a video receiver. In this case, the camera automatically sends an e-mail to a previously defined e-mail address.

Send alarm e-mail
Select **On** if you want the unit to automatically send an alarm e-mail in the event of an alarm.

Mail server IP address
Enter the IP address of a mail server that operates on the SMTP standard (Simple Mail Transfer Protocol). Outgoing e-mails are sent to the mail server via the address you entered. Otherwise leave the box blank (**0.0.0.0**).

SMTP user name
Enter a registered user name for the chosen mailserver here.

SMTP password
Enter the required password for the registered user name here.

Format
You can select the data format of the alarm message.
- **Standard (with JPEG)** E-mail with attached JPEG image file.
- **SMS** E-mail in SMS format to an e-mail-to-SMS gateway (for example to send an alarm by cellphone) without an image attachment.

Caution!
When a cellphone is used as the receiver, make sure to activate the e-mail or SMS function, depending on the format, so that these messages can be received.
You can obtain information on operating your cellphone from your cellphone provider.

Image size
Select the appropriate image size: Small, Medium, Large, 720p, 1080p.

Attach JPEG from camera
Click the checkbox to specify that JPEG images are sent from the camera. An enabled video input is indicated by a check mark.

Destination address
Enter the e-mail address for alarm e-mails here. The maximum address length is 49 characters.

Sender address
Enter a unique name for the e-mail sender, for example the location of the device. This will make it easier to identify the origin of the e-mail.
Note: The name must include at least two character groups separated by a blank (for example, Parking Garage) in order for the system to generate an email from that name, as in “From Parking Garage”. Text with only one group of characters (for example, Lobby) will not generate an email.

Test e-mail
You can test the e-mail function by clicking the **Send Now** button. An alarm e-mail is immediately created and sent.

14.36 Alarm Task Editor

Caution!
Editing scripts on this page overwrites all settings and entries on the other alarm pages. This procedure cannot be reversed.
In order to edit this page, you must have programming knowledge and be familiar with the information in the Alarm Task Script Language document.

As an alternative to the alarm settings on the various alarm pages, you can enter your desired alarm functions in script form here. This will overwrite all settings and entries on the other alarm pages.

1. Click the **Examples** link under the Alarm Task Editor field to see some script examples. A new window will open.
2. Enter new scripts in the Alarm Task Editor field or change existing scripts in line with your requirements.
3. When you are finished, click the **Set** button to transmit the scripts to the unit. If the transfer was successful, the message **Script successfully parsed** is displayed over the text field. If it was not successful, an error message will be displayed with further information.

14.37 Alarm Rules

The camera features an alarm rule engine. In its simplest form, an alarm rule can define which input(s) activate which output(s). Basically, an alarm rule allows you to customize the camera to respond automatically to different alarm inputs.
To configure an alarm rule specify one input from a physical connection, a motion detection trigger, or from a connection to the camera’s **LIVE** page. The physical input connection can be activated by dry contact devices such as pressure pads, door contacts, and similar devices.

Next, specify up to two (2) rule outputs, or the camera's response to the input. Outputs include a physical alarm relay, an AUX command, or a preposition scene.

1. Click the Enabled check box to activate the alarm.
2. Choose one of the following alarm Inputs:
   Local Input 1: a physical alarm connection.
   Local Input 2: a physical alarm connection.
   IVA/MOTION+: an alarm when IVA or motion detection is activated.
   Connection: an alarm when an attempt is made to access the camera's IP address.
3. Choose one of the following output commands for both Output 1 and Output 2 settings:
   None: no defined command.
   Alarm Relay: defines a physical connection from the open collector alarm output.
   Aux On: defines a standard or custom keyboard ON command. Refer to *User Command Table, page 149* for a list of valid commands.
   Note: Only commands 1, 8, 18, 20, 43, 60, 80, 86 are supported. Support for the remaining commands is scheduled for a future release.
   Aux Off: defines a standard or custom keyboard OFF command. Refer to to *User Command Table, page 149* for a list of valid commands.
   Note: Only commands 1, 8, 18, 20, 43, 60, 80, 86 are supported. Support for the remaining commands is scheduled for a future release.
   Shot: defines a preset scene from shot 1-256.
4. Click Set to save and to activate the alarm rules.

14.38 Advanced Mode: Interfaces

14.39 Alarm Inputs

Select the type of input for each physical alarm. Select from either **N.O.** (Normally Open) or **N.C.** (Normally Closed) and provide an optional name for each input.

14.40 Alarm Outputs

The camera incorporates three (3) open collector alarm or transistor outputs. Use the following settings to configure the relay for alarm outputs.

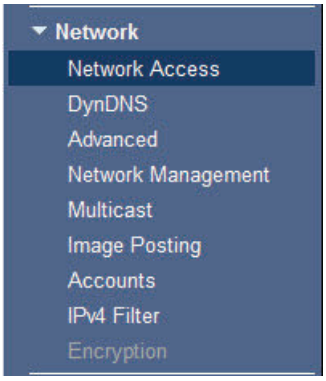
Idle state
Specify either **Open** or **Closed** idle state.

Operating mode
Select one of the following modes for operation: Bistable, 0.5 s, 1 s, 5 s, 10 s, or 60 s.

Output name
Type an optional name for the relay connection, up to 20 characters.

Trigger output
Click the appropriate **Trigger output** button to test the relay / output connection.

14.41 Advanced Mode: Network



14.42 Network Access

The settings on this page are used to integrate the camera into an existing network.
Some changes only take effect after the unit is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click the **Set and Reboot** button. The camera reboots and the changed settings are activated.

Caution!
If you change the IP address, subnet mask or gateway address, the camera is only available under the new addresses after the reboot.

Automatic IP assignment
If a DHCP server is employed in the network for the dynamic assignment of IP addresses, you can activate acceptance of IP addresses automatically assigned to the camera.
Certain applications (Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

IPv4
Fill in the 3 fields in this section of the screen.

IP address
Enter the desired IP address for the camera in this field. The IP address must be valid for the network.

Subnet mask
Enter the appropriate subnet mask for the selected IP address here.

Gateway address
If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box blank (**0.0.0.0**).

IPv6
Consult with the network administrator before making changes to this section.

IP address
Enter the desired IP address for the camera in this field. The IP address must be valid for the network. A typical IPv6 address may resemble the following example:
2001:db8: :52:1:1

Consult the network administrator for valid IPv6 address construction.

Prefix length
A typical IPv6 node address consists of a prefix and an interface identifier (total 128 bits). The prefix is the part of the address where the bits have fixed values or are the bits that define a subnet.

Gateway address
If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box blank (**0.0.0.0**).

DNS server address 1 / DNS server address 2
The camera is easier to access if the unit is listed on a DNS server. If you wish, for example, to establish an Internet connection to the camera, it is sufficient to enter the name given to the unit on the DNS server as a URL in the browser. Enter the IP address of the DNS server here. Servers are supported for secure and dynamic DNS.

Video transmission
If the unit is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.

Caution!
Multicast operation is only possible with the UDP protocol. The TCP protocol does not support multicast connections.
The MTU value in UDP mode is 1,514 bytes.

TCP rate control
Select On to control the rate of transmission control protocol. Select Off if you do not want to control the TCP rate.

HTTP browser port
Select a different HTTP browser port from the list if required. The default HTTP port is 80. If you want to allow only secure connections via HTTPS, you must deactivate the HTTP port. In this case, select **Off**.

HTTPS browser port
If you wish to allow browser access on the network via a secure connection, select an HTTPS browser port from the list if necessary. The default HTTPS port is 443. Select the **Off** option to deactivate HTTPS ports; only unsecured connections will now be possible.
The camera uses the TLS 1.0 encryption protocol. You may have to activate this protocol via your browser configuration. You must also activate the protocol for the Java applications (via the Java control panel in the Windows control panel).

Notice!
If you want to allow only secure connections with SSL encryption, you must select the **Off** option for each of the parameters **HTTP browser port**, **RCP+ port 1756** and **Telnet support**. This deactivates all unsecured connections. Connections will then only be possible via the HTTPS port.

You can activate and configure encryption of the media data (video and metadata) on the **Encryption** page (see *Encryption, page 128*).

RCP+ port 1756
To exchange connection data, you can activate the unsecured RCP+ port 1756. If you want connection data to be transmitted only when encrypted, select the **Off** option to deactivate the port.

Telnet support
If you want to allow only secure connections with encrypted data transmission, you must select the **Off** option to deactivate Telnet support. The unit will then no longer be accessible using the Telnet protocol.

Interface mode ETH
If necessary, select the Ethernet link type for the **ETH** interface. Depending on the unit connected, it may be necessary to select a special operation type.

Network MSS (Byte)
You can set the maximum segment size for the IP packet's user data. This gives you the option to adjust the size of the data packets to the network environment and to optimize data transmission. Please comply with the MTU value of 1,514 bytes in UDP mode.

iSCSI MSS (Byte)
You can specify a higher MSS value for a connection to the iSCSI system than for the other data traffic via the network. The potential value depends on the network structure. A higher value is only useful if the iSCSI system is located in the same subnet as the camera.

Network MTU (Byte)
The value in the field defaults to 1514.

14.43 DynDNS

Enable DynDNS
DynDNS.org is a DNS hosting service that stores IP addresses in a database ready for use. It allows you to select the camera via the Internet using a host name, without having to know the current IP address of the unit. You can enable this service here. To do this, you must have an account with DynDNS.org and you must have registered the required host name for the unit on that site.

Notice!
Information about the service, registration process and available host names can be found at DynDNS.org.

Provider
The value in this field defaults to dyndns.org. Select another option as necessary.

Host name
Enter the host name registered on DynDNS.org for the camera here.

User name
Enter the user name you registered at DynDNS.org here.

Password
Enter the password you registered at DynDNS.org here.

Force registration now
You can force the registration by transferring the IP address to the DynDNS server. Entries that change frequently are not provided in the Domain Name System. It is a good idea to force the registration when you are setting up the device for the first time. Only use this function when necessary and no more than once a day, to avoid the possibility of being blocked by the service provider. To transfer the IP address of the camera, click the **Register** button.

Status
The status of the DynDNS function is displayed here for information purposes. You cannot change any of these settings.

Notification mail
Select On to set the system to provide email notification of domain registration.

Mail address
Enter the email address for notification.

14.44 Advanced

The settings on this page are used to implement advanced settings for the network.

User Mode
Select the appropriate mode for cloud-based services:
– Off
– On
– Auto (default option)

RTSP port
If necessary, select a different port for the exchange of the RTSP data from the list. The standard RTSP port is 554. Select **Off** to deactivate the RTSP function.

Authentication
If a RADIUS server is employed in the network for managing access rights, authentication must be activated here to allow communication with the unit. The RADIUS server must also contain the corresponding data.
To configure the unit, you must connect the camera directly to a computer using a network cable. This is because communication via the network is not enabled until the **Identity** and **Password** parameters have been set and successfully authenticated.

Identity
Enter the name that the RADIUS server is to use for identifying the camera.

Password
Enter the password that is stored in the RADIUS server.

NTCIP
Specifies a set of rules and protocols for organizing, describing and exchanging transportation management information between transportation management applications and transportation equipment such that they interoperate with each other.
Select a port for **NTCIP** and the **Address** from the appropriate drop-down lists.

TCP port
The device can receive data from an external TCP sender, for example an ATM or POS device, and store it as metadata. Select the port for TCP communication. Select Off to deactivate the TCP metadata function.

Sender IP address
Enter the IP address of the TCP metadata sender here.

14.45 Network Management

SNMP
The camera supports the SNMP V1 (Simple Network Management Protocol) for managing and monitoring network components, and can send SNMP messages (traps) to IP addresses. The unit supports SNMP MIB II in the unified code. If you wish to send SNMP traps, enter the IP addresses of one or two required target devices here.
If you select **On** for the **SNMP** parameter and do not enter an SNMP host address, the camera does not send them automatically, but only replies to SNMP requests. If you enter one or two SNMP host addresses, SNMP traps are sent automatically. Select **Off** to deactivate the SNMP function.

1. SNMP host address / 2. SNMP host address
If you wish to send SNMP traps automatically, enter the IP addresses of one or two required target units here.

SNMP traps

You can select which traps are to be sent.

1. Click **Select**. A list is opened.
2. Click the checkboxes to select the required traps. All the checked traps will be sent.
3. Click **Set** to accept the selection.

UPnP

You can activate the Universal Plug and Play (UPnP) function. If the function is turned on, the unit responds to requests from the network and is automatically registered on the requesting computers as a new network device. For example, access to the unit can then be made using Windows Explorer without knowledge of the IP address of the unit.

Notice!

To use the UPnP function on a computer, both the Universal Plug and Play Device Host and SSDP Discovery Service must be active in Windows XP and Windows 7.

Quality of service

The camera offers Quality of Service (QoS) configuration options to ensure fast network response to PTZ data and images. Quality of Service (QoS) is the set of techniques to manage network resources. QoS manages the delay, delay variation (jitter), bandwidth, and packet loss parameters to guarantee the ability of a network to deliver predictable results. QoS identifies the type of data in a data packet and divides the packets into traffic classes that can be prioritized for forwarding.

Consult with your network administrator for assistance configuring the **Audio**, **Video**, **Control**, and the **Alarm video** settings, and to select the appropriate **Post-alarm time**.

14.46 Multicast

In addition to a 1:1 connection between an encoder and a single receiver (unicast), the camera can enable multiple receivers to receive the video signal from an encoder simultaneously. The device either duplicates the data stream itself and then distributes it to multiple receivers (Multi-unicast) or it sends a single data stream to the network, where the data stream is simultaneously distributed to multiple receivers in a defined group (Multicast). You can enter a dedicated multicast address and port for each stream. You can switch between the streams by clicking the appropriate tabs.

Notice!

Multicast operation requires a multicast-enabled network that uses the UDP and the Internet Group Management IGMP protocols. Other group management protocols are not supported. The TCP protocol does not support multicast connections.

A special IP address (class D address) must be configured for multicast operation in a multicast-enabled network.

The network must support group IP addresses and the Internet Group Management Protocol (IGMP V2). The address range is from 225.0.0.0 to 239.255.255.255.

The multicast address can be the same for multiple streams. However, it will be necessary to use a different port in each case so that multiple data streams are not sent simultaneously using the same port and multicast address.

Notice!

The settings must be made individually for each stream.

Enable
To enable simultaneous data reception on several receivers you need to activate the multicast function. To do this, check the box. You can then enter the multicast address.

Multicast Address
Enter a valid multicast address for each stream to be operated in multicast mode (duplication of the data streams in the network).
With the setting **0.0.0.0** the encoder for the relevant stream operates in multi-unicast mode (copying of data streams in the unit). The camera supports multi-unicast connections for up to five simultaneously connected receivers.

Notice!
Duplication of data places a heavy demand on the unit and can lead to impairment of the image quality under certain circumstances.

Port
Assign a different port to each data stream if there are simultaneous data streams at the same multicast address.
Enter the port address of the required stream here.

Streaming
Click the checkbox to activate multicast streaming mode for the relevant stream. An enabled stream is indicated by a check mark.

Multicast packet TTL
You can enter a value to specify how long the multicast data packets are active on the network. This value must be greater than one if multicast is to be run via a router.

14.47 Image Posting

You can save individual JPEG images on an FTP server at specific intervals. You can then retrieve these images at a later date to reconstruct alarm events if required. In order to configure image posting, and to save and retrieve JPEG images, you must create an Account in which to save and access them. If you have not configured an account, the following error message appears at the top of this page: “No configured account. Configure accounts.” Click the link to access the *Accounts, page 128* page.

Image size
Select the size of the images that you want to save:
- Small
- Medium
- Large
- 720p
- 1080p

File name
You can select how file names will be created for the individual images that are transmitted.
- **Overwrite** The same file name is always used and any existing file will be overwritten with the current file.
- **Increment** A number from 000 to 255 is added to the file name and automatically incremented by 1. When it reaches 255 it starts again from 000.
- **Date/time suffix** The date and time are automatically added to the file name. When setting this parameter, ensure that the unit's date and time are always correctly set. Example: the file snap011005_114530.jpg was stored on October 1, 2005 at 11:45 and 30 seconds.

Posting interval
Enter the interval in seconds at which the images will be sent to an FTP server. Enter 0 (zero) if you do not want any images to be sent.

Target
Select the target—the name of the account on the server—to which to save images.

Enable
Click this checkbox to enable face detection.

File format
Select the file format in which to save images. Options are JPEG (default), YUV420, TIFF.

Target
Select the target—the name of the account on the server—to which to save images.

Timeouts
Select the number of timesouts for image posting. The default is 0 (no timeout).

Maximum image width
Enter a number for the maximum width, in pixels, for the saved images.

14.48 Accounts

In order to configure image posting, and to save and retrieve JPEG images, you must create an Account in which to save and access them. You can create a maximum of four (4) accounts.

Type
Select the type of account: FTP or Dropbox.

Account name
Enter the name of the account.

IP address
Enter the IP address of the server on which you wish to save the JPEG images.

Login
Enter the login ID for the server.

Password
Enter the password that gives you access to the server. To verify the password, click the Check button to the right.

Path
Enter the exact path on which you wish to post the images on the server. To browse for the correct path, click the Browse button to the right.

Maximum bit rate
Enter the maximum bit rate for the JPEG images (in kbps).

14.49 IPv4 Filter

Use this setting to configure a filter that allows or blocks network traffic that matches a specified address or protocol.

IP Address 1 / 2
Enter the IPv4 address that you want to allow or block

Mask 1 / 2
Enter the subnet mask for the appropriate IPv4 address.

14.50 Encryption

A special license, with which you will receive a corresponding activation key, is required to encrypt user data. You can enter the activation key to release the function on the **Licenses** page (see *Licenses, page 130*).

14.51 Advanced Mode: Service

Maintenance, page 129
Licenses, page 130
Diagnostics, page 130
System Overview, page 130

14.52 Maintenance

Upgrading your camera

The camera allows an operator to update the camera firmware via the TCP/IP network. The Maintenance page allows updates of the firmware.

For the latest firmware, go to www.boschsecurity.com, navigate to the product page for your camera, and then download the software from the Software tab.

The preferred method to update your camera is through a direct connection between the camera and a PC. This method entails connecting the Ethernet cable from the camera directly to the Ethernet port of a PC.

If the direct-connect method is not practical, you can also update the camera through a Local Area Network (LAN). You cannot, however, update the camera through a Wide Area Network (WAN) or via the Internet.

Update server

Enter the path of the server on which to perform the update. Click **Check** to verify the path.

Firmware

The camera is designed in such a way that its functions and parameters can be updated with firmware. To do this, transfer the current firmware package to the unit via the selected network. It will then be automatically installed there.

In this way, a camera can be serviced and updated remotely without a technician having to change the installation on site.

Caution!

Before launching the firmware upload make sure that you have selected the correct upload file. Uploading the wrong files can result in the unit no longer being addressable, in which case you must replace the unit.

You should never interrupt the installation of firmware. An interruption can lead to the flash-EPROM being incorrectly programmed. This in turn can result in the unit no longer being addressable, in which case it will have to be replaced. Even changing to another page or closing the browser window leads to an interruption.

Upload

1. Enter the full path of the file to upload or click **Browse** to navigate to the required firmware file (*.fw).
2. Make certain that the file to be loaded comes from the same unit type as the unit you want to configure.
3. Next, click **Upload** to begin transferring the file to the unit. The progress bar allows you to monitor the transfer.
4. Click OK to the warning message to continue the firmware upload, or Cancel to stop the upload.
   The page displays a progress bar as the firmware is uploaded.
   Note: Once the progress bar reaches 100%, the system opens the reset page. Allow the reset page to complete its action.

Once the upload is complete, the new configuration is activated. The time remaining is shown by the message **going to reset Reconnecting in ... seconds**. The unit reboots automatically once the upload has successfully completed.

Download

1. Click the **Download** button. A dialog box opens.
2. Follow the on-screen instructions to save the current settings.

Configuration

You can save configuration data for the camera on a computer and then load saved configuration data from a computer to the unit.

SSL certificate

To be able to work with an SSL encrypted data connection, both ends of a connection must hold the relevant certificates. You can upload the SSL certificate, comprising one or multiple files, onto the camera.

If you wish to upload multiple files onto camera, you must select them consecutively.

1. Enter the full path of the file to upload or click **Browse** to select the required file.
2. Next, click **Upload** to begin transferring the file to the unit.
3. Once all files have been successfully uploaded, the unit must be rebooted. In the address bar of your browser, enter **/reset** after the IP address of camera (for example **192.168.0.10/reset**).

The new SSL certificate is valid.

Maintenance log

You can download an internal maintenance log from the unit to send it to Customer Service for support purposes. Click **Download** and select a storage location for the file.

14.53 Licenses

You can enter the activation key to release additional functions or software modules.

Notice!

The activation key cannot be deactivated again and is not transferable to other units.

14.54 Diagnostics

Accesses the Built-in Self Test (BIST). The BIST displays a Pass or Fail status on the most recent homing event, not a counter. For the other items, a counter is maintained.

Click the Start BIST button to display the number of times the camera:

- performed a homing event.
- failed to home properly.
- restarted.
- lost video.

14.55 System Overview

The data on this page are for information purposes only and cannot be changed. Keep a record of this information in case technical assistance is required.

Notice!

You can select all required text on this page with the mouse and copy it to the clipboard with the [Ctrl]+[C] key combination, for example if you want to send it via e-mail.

15 Operation

15.1 Using the AUTODOME Camera

The AUTODOME 7000 transmits PTZ control commands and images over a TCP/IP network. It also allows users to configure the camera display settings, camera operating settings, and to configure the network parameters.
The camera incorporates a network video server in the IP module. The primary function of the server is to encode video and control data for transmission over a TCP/IP network. With its H. 264 encoding, it is ideally suited for IP communication and for remote access to digital video recorders and multiplexers. The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily. Video images from a single camera can be simultaneously received on several receivers.

LIVE page

Once the connection is established, the Web browser displays the **LIVE** page. It shows the live video image on the right of the browser window. Depending on the configuration, various text overlays may be visible on the live video image.
Other information may be shown next to live video image on the **LIVE** page**.** The display depends on the settings selected in the **LIVE Functions** page (see the AUTODOME 7000 Series online help).

Display Stamping

Various overlays or “stamps” in the video image provide important status information. The overlays provide the following information:

Decoding error. The frame might show artifacts due to decoding errors. If subsequent frames reference this corrupted frame, they might also show decoding errors as well but won’t be marked with the “decoding error” icon.

Alarm flag set on media item

Communication error. Any kind of communication error is visualized by this icon. Cause can be a connection failure to the storage medium, a protocol violation with a sub component or simply a timeout. An automatic reconnection procedure is started in the background in order to recover from this error.

Gap; no video recorded

Watermarking not valid

Watermarking flag set on media item

Motion flag set on media item

Discovery of storage not completed. If the information about recorded video is not cached, a discovery procedure is started in order find all recorded video. During this time, the “discovery” symbol is shown. While discovery is executed, gaps might be shown in places which the discovery has not yet reached. The gap will automatically be replaced by the true video, as soon as the correct information is available.

Maximum Number of Connections
If you do not connect, the unit may have reached its maximum number of connections. Depending on the unit and network configuration, each camera can have up to 50 Web browser connections or up to 100 connections via the Bosch Video Management System (BVMS).

Protected AutoDome
If the camera is password protected against unauthorized access, the Web browser displays a corresponding message and prompts you to enter the password when you attempt to access protected areas.

Notice!
An AUTODOME 7000 Series offers the option to limit the extent of access using various authorization levels (see the AUTODOME 7000 Series online help).

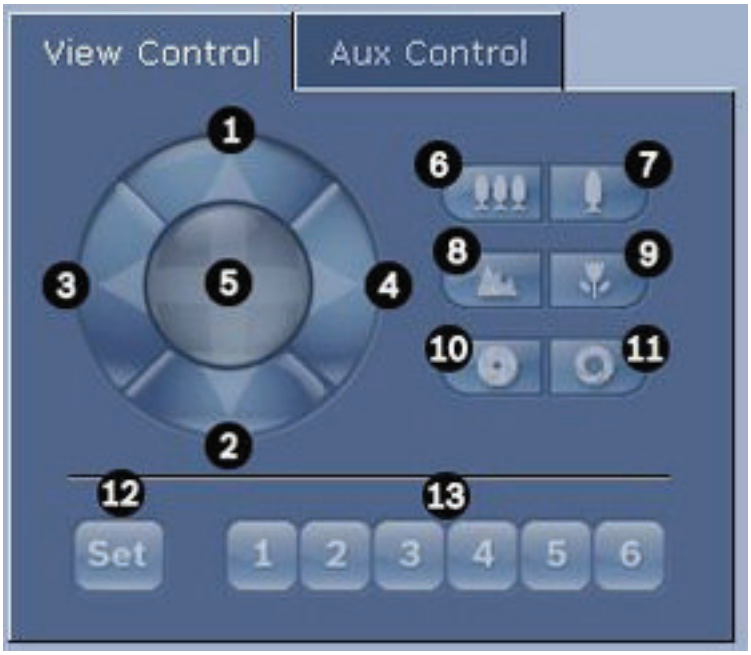
1. Enter the user name and associated password in the corresponding text fields.
2. Click **OK**. If the password is entered correctly, the Web browser displays the page that was called up.

Protected Network
If a RADIUS server is employed in the network for managing access rights (802.1x authentication), the camera must be configured accordingly, otherwise no communication is possible.

Image Selection
You can view the image of the camera in different displays.

- Click one of the tabs **Stream 1**, **Stream 2**, or **M-JPEG** below the video image to toggle between the different displays of the camera image.

View Control
The **View Control** tab allows you to control camera functions (pan, tilt, zoom, focus, and iris), navigate through on-screen menus and to view preset scenes (shots).



Ref #	Description	Ref #	Description
1	Tilts the camera up	8	Focus far²

2	Tilts the camera down	9	Focus near²
3	Pans the camera to the left	10	Iris close²
4	Pans the camera to the right	11	Iris open²
5	Pans and tilts the camera in all directions	12	Sets the pre-set scene for the corresponding button 1, 2, 3, 4, 5 and 6
6	Zoom out¹	13	Moves the camera to pre-set scene numbers 1, 2, 3, 4, 5 and 6
7	Zoom in¹		
¹ This function is also accessible by using the mouse scroll wheel while in the Live video frame.			
² This button is also used as the “Enter” button to select menu items from the AUX tab.			

To control a peripheral, follow these steps:

1. Click the appropriate controls.
2. Move the mouse cursor over the video image. Additional options for controlling peripherals are displayed with the mouse cursor.
3. To manually pan throughout the image area, move your cursor over any part of the live video. The image area displays a directional arrow (←→↑↓↖↗↙↘), then click and hold the right mouse key to pan the camera.

Preset List

The View Control Tab displays a list of all presets with their titles, if any are defined, below Presets 1-6. To move the camera to a preset scene, select the appropriate preset from the drop-down list. Refer to *Scenes and Tours, page 105* to define a preset scene and to specify a title for the preset.

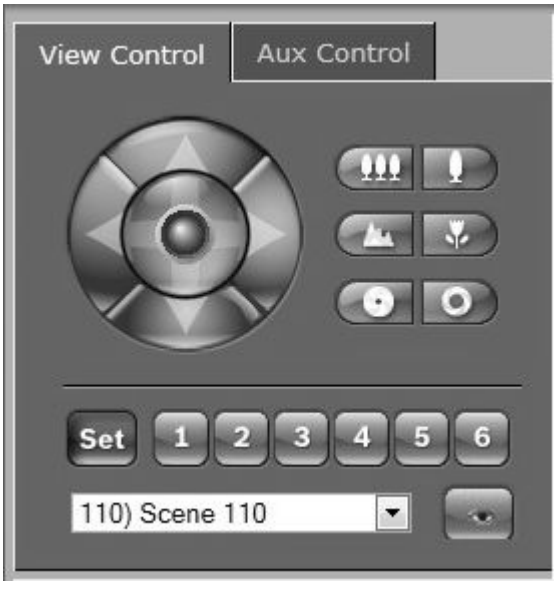


Figure 16.1: View control tab preset / scene list

Digital I/O

The alarm icon is for information purposes and indicates the status of an alarm input: When an alarm is triggered, the icon lights up blue. The device’s configuration determines whether the alarm is displayed, as well as additional details (see the AUTODOME 7000 Series online help).

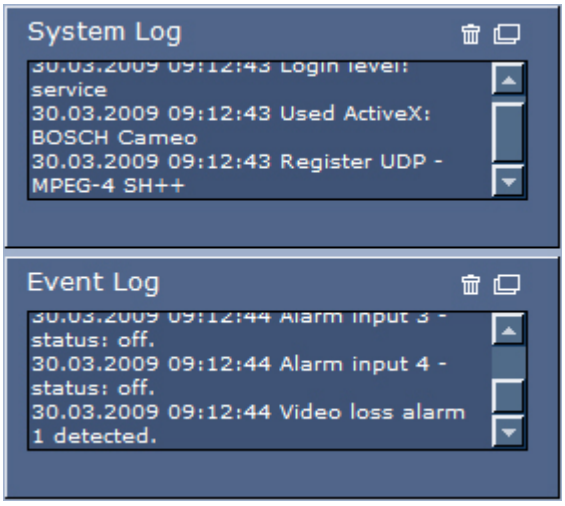
Triggering Relay

You can switch connected units using the relays in the camera (for example, lights or door openers).

- To activate this, click the icon for the relay next to the video image. The icon will be red when the relay is activated.

System Log

The **System Log** field contains information about the operating status of the camera and the connection. You can save these messages automatically in a file (see the online help).



Events such as the triggering or end of alarms are shown in the **Event Log** field. You can save these messages automatically in a file (see the online help).

1. If you want to delete the entries, click the delete icon in the top right-hand corner of the relevant field.
2. If you want to view a detailed log, click the icon in the top right-hand corner of the relevant field. A new window will open.

Audio function

All users who are connected to the camera via Web browser can receive audio signals from the camera. Audio signals can only be sent to the camera by the user who connects to the unit first.

1. On the **LIVE** page, click anywhere next to the video image to remove the focus from the ActiveX.
2. Hold down the F12 key to establish a voice connection to the camera. The browser's status bar displays the message Send Audio ON.
3. Release the F12 key when you want to stop sending audio signals to the camera. The status bar displays the message Send Audio OFF.

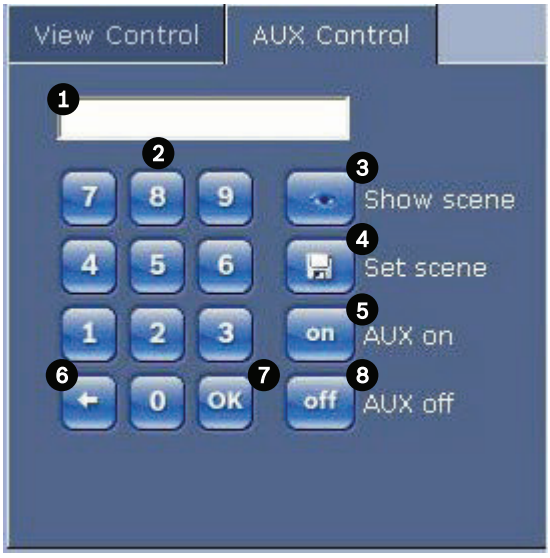
Notice!

When the voice contact connection to the camera is broken, the next user to make a connection to the camera can send audio data to the camera.

Aux Control Tab

The **AUX Control** tab is used to enter pre-programmed keyboard control commands. These commands are composed of a command number plus the appropriate function key (Show scene, Set scene, AUX on, AUX off). A valid combination either issues a command to the camera or displays an on-screen menu.

To access the **AUX Control** tab, go to the **LIVE** page and click the **AUX Control** tab.



1	Command number field
2	Keypad (numbers 0-9)
3	Show a preset scene
4	Set a preset scene
5	Initiates a command
6	Deletes a number in the Command Number field
7	Used to select a menu item
8	Stops a command

Notice!

Some commands (such as Set 110, Set 899) that were “SET” commands in previous AUTODOME models are no longer “SET” commands. See the Appendix for the complete list of commands and how to activate them.

To Enter a Keyboard Control Command:

1. Place the cursor in the Command Number field.
2. Click the desired command number via the on-screen keypad.
3. Click either the Aux on button or the Aux off button to initiate or stop the command.
4. If the command initiates a menu, use the Up/Down arrows on the View Control to navigate the menu. Click the Focus button or Iris button to select a menu item.

To Set a Preset Shot:

Preset shots (or scenes) are camera positions that are saved in memory for future use.

1. Move your cursor over the live image and wait for the area to display a directional arrow.
2. Click and hold a mouse button to pan to the desired position that you want to save.
3. Click any number combination from 1-256 from the on-screen keypad to identify the scene number.
4. Click the Set scene button. The image area displays a message that indicates which shot number was saved.

To View a Preset Shot:

1. Click the number of the scene you want to view using the on-screen keypad.

2. Click the Show scene button.

Notice!
For more information about the camera settings and controls, click the **Help on this page?** link to open the online help.

LIVE page Special Functions
The camera offers special command buttons on the **LIVE** page.

Scan 360°
Click this button to start a continuous 360° pan. To stop the continuous pan, click a directional control in the View Control tab.

Autopan
Click this button to pan the camera between user-defined limits. To set the left and right pan limits, refer to PTZ Settings in the Operator Manual. To stop the continuous pan, click a directional control in the View Control tab.

Tour A / Tour B
Click one of these buttons to start the playback of a recorded (guard) tour. A Recorded Tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds and other lens setting changes. To program a recorded tour, refer to PTZ Settings. To stop a tour, click a directional control in the View Control tab.

Warning!
Save presets using One Push (“Spot Focus“). Refer to *Lens Settings, page 103*.

Find home
Click the **Find home** button to recalibrate the home position for the camera.

Show home
Click the **Show home** button to display the current home position.

Refocus
Click the **Refocus** button to issue the One Push focus command. One Push activates the Auto Focus feature after the camera stops moving.

Saving Snapshots
You can save individual images from the video sequence currently shown on the **LIVE** page in JPEG format on your computer's hard drive. The icon for recording single images is only visible if the unit is configured to enable this process.

- Click the icon. The storage location depends on the configuration of the camera.

Recording Video Sequences

You can save sections of the video sequence currently shown on the **LIVE** page on your computer's hard drive. The icon for recording video sequences is only visible if the unit is configured to enable this process.

- Click the icon to start recording. The storage location depends on the configuration of the camera. A red dot in the icon indicates that recording is in progress.

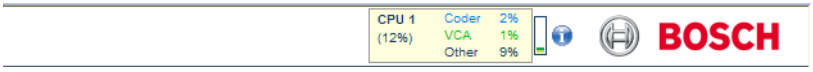
1. Click the icon again to stop recording.
2. To change the storage location for the recorded video, select **Advanced Mode > Recording > Storage Management** from the **SETTINGS** page.

Image Resolution

Sequences are saved at the resolution that has been preset in the configuration for the encoder (see *Basic Mode: Network, page 85*).

Processor Load

If the camera is accessed via the Web browser, you will see the processor load indicator in the top left of the window next to the manufacturer's logo.



You can obtain additional information to help when you troubleshoot or fine-tune the unit. The values indicate the proportions of the individual functions on the encoder load, shown as percentages.

- Move the cursor over the graphic indicator. Some additional numerical values are also displayed.

Accessing Recorded Video from the Recordings Page / PLAYBACK

Click **Recordings** to access the **Recordings** page from the **LIVE** page or **SETTINGS** page (the **Recordings** link is only visible if a storage medium has been selected).

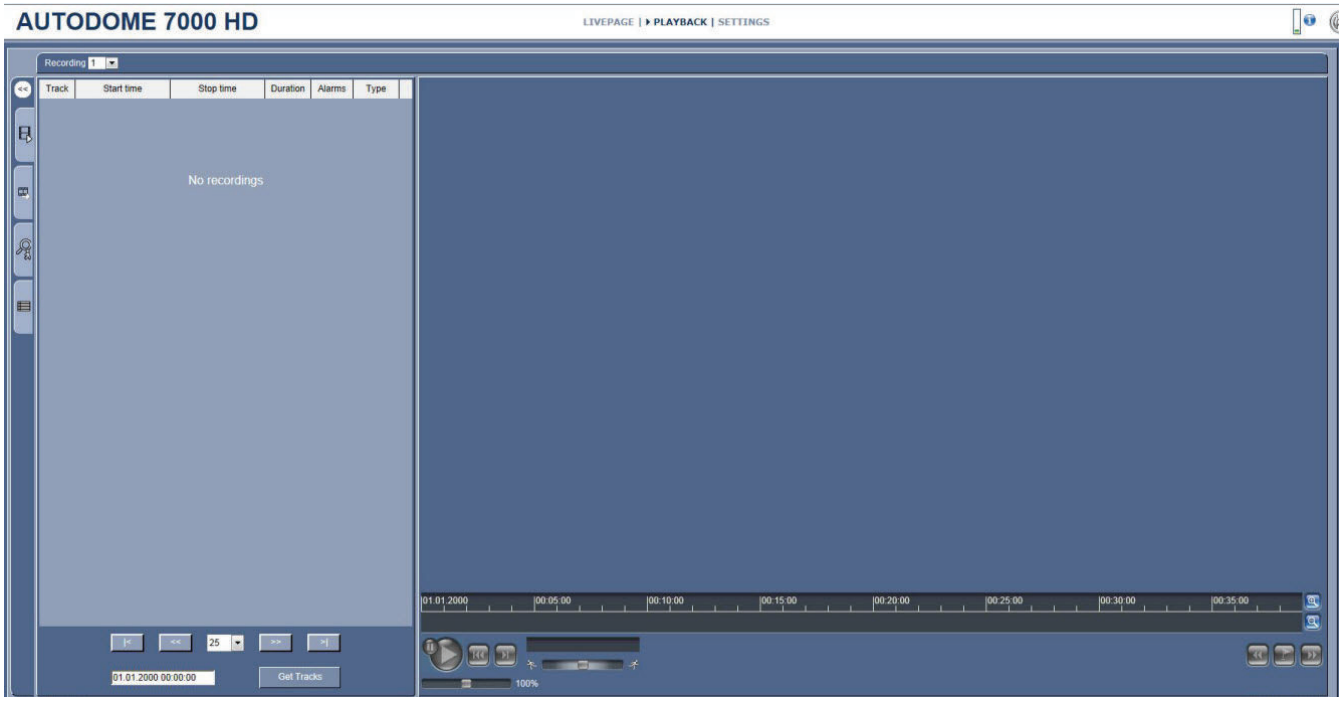


Figure 16.2: Playback page

Selecting Recordings

All saved sequences are displayed in a list. A track number is assigned to each sequence. Start time and stop time, recording duration, number of alarms, and recording type are displayed.

To play back recorded video sequences:

1. Select **Recording** 1 or 2 in the drop-down menu. (The contents for 1 and 2 are identical, only the quality and location may be different.)
2. Use the arrow buttons to browse the list.
3. Click a track. The playback for the selected sequence starts.

Export to FTP

Click **Export to FTP** to send the current track to the FTP server. If required, change the times within the selected range.

Controlling Playback

A time bar below the video image allows quick orientation. The time interval associated with the sequence is displayed in the bar in gray. A green arrow above the bar indicates the position of the image currently being played back within the sequence.

The time bar offers various options for navigation in and between sequences.

– Change the time interval displayed by clicking the plus or minus icons. The display can span a range from two months to a few seconds.
– If required, drag the green arrow to the point in time at which the playback should begin.
– Red bars indicate the points in time where alarms were triggered. Drag the green arrow to navigate to these points quickly.

Control playback by means of the buttons below the video image. The buttons have the following functions:

Start/Pause playback

Jump to start of active sequence or to previous sequence

Jump to start of the next video sequence in the list

Continuously select playback speed by means of the speed regulator (slide control):

Bookmarks

In addition, set markers in the sequences, so-called bookmarks, and jump directly to these. These bookmarks are indicated as small yellow arrows above the time interval. Use the bookmarks as follows:

Jump to the previous bookmark

Set bookmark

Jump to the following bookmark

Bookmarks are only valid while in the Recordings page; they are not saved with the sequences. All bookmarks are deleted when leaving the page.

Tracking

For information about the **Tracking** section of the **LIVE** page, refer to *Using Intelligent Tracking, page 139*.

See also

– *User Command Table, page 149*

15.2 Using Intelligent Tracking

Configuring Intelligent Tracking

The camera utilizes the built-in Intelligent Video Analytics (IVA) to continuously follow an individual or object even if it passes behind a Privacy Mask or a stationary object. The camera uses objects detected by IVA in a stationary preset position to activate the Intelligent Tracking feature.

The Intelligent Tracking feature allows continuous on-screen following of an individual or an object. This feature operates by recognizing an object in motion and zooms in to approximately 50% (default Tracker zoom threshold) of the field of view for an average target height of six feet. This feature controls the pan/tilt/zoom actions of the camera to keep the selected object in the scene.

To activate the Intelligent Tracking feature, one of the following conditions must be met:

- The Silent IVA option must be selected in the VCA page on the Settings tab. Refer to *VCA, page 114*.
- IVA must be active for at least one preset scene in the VCA page on the Settings tab. If IVA is configured for one scene, then all other scenes have Intelligent Tracking enabled by default. If a scene has Motion+ of IVA Flow activated, however, then Intelligent Tracking is disabled for these scenes.

Notice!

The following actions occur if Intelligent Tracking is active:

All other IVA objects are disabled in scenes with Intelligent Tracking.

The camera automatically disables the display of compass headings. Once Intelligent Tracking is set to Off, the camera resumes display of the compass heading. Refer to *PTZ Settings, page 104* for details of the Compass feature.

Guidelines for Implementing Intelligent Tracking

Factors such as the viewing angle and unwanted motion (from trees, for example) may interfere with Intelligent Tracking operation. Use the following recommendations to ensure smooth Intelligent Tracking operation:

- **Mount/Mounting Surface Stability**
  - Mount the camera in the most stable position. Avoid locations affected by vibrations, such as those caused by a roof-top air conditioner. These vibrations may cause complications when the camera zooms-in on a target.
  - Use the pendant arm mount, if possible. This mount option provides the most stability for the camera.
  - Use guy wires to protect against strong winds if using the parapet mount.
- **Field of View**
  - Select a location and viewing angle that allows the flow of people to move across the camera's field of view.
  - Avoid motion that moves directly towards the camera.
  - Avoid locations that attract large numbers of people, such as retail stores or intersections. Intelligent Tracking is optimized for scenes with very few moving objects.
- **Unwanted Motion**
  - Avoid neon lights, flashing lights, night time lights, and reflected light (from a window or mirror, for example). The flickering of these lights can affect the Intelligent Tracking operation.
  - Avoid motion from moving leaves/branches that present a persistent fixed motion.

Operation of Intelligent Tracking

The Intelligent Tracking feature behaves in one of the following ways:

- **Camera detects an object in motion and automatically tracks the object**
  User actions always take precedence over Intelligent Tracking. If the camera is actively tracking an object and a user takes control, the camera will attempt to track the object after a period of inactivity.
- **An IVA alarm can trigger Intelligent Tracking to track a detected object**
  A rule that triggers an IVA event must be set. The following standard tasks can be set: Object in field, Crossing Line, Loitering, Condition change, Following route, Entering field, and Leaving field. Refer to the *IVA 5.60 Operation Manual* for specific information.
- **A user manually selects an object in the live image area to track**
  The Intelligent Tracking feature allows a user to click a moving object in the live image display inside the **LIVE** page to identify an object to track.
- **Use AUX Command 78 to activate/deactivate Intelligent Tracking**
  Use AUX ON 78 to enable the Intelligent Tracking Auto mode. This command can be used in conjunction with the rules engine.

Using Intelligent Tracking

Use the following options on the **LIVE** page to control Intelligent Tracking:

Note: If you do not see these controls on the **LIVE** page, ensure that the **Show** '**Tracking**' option is enabled on the **LIVE Functions** page. Refer to *LIVE Functions, page 93*.

- **Off**: Disables Intelligent Tracking.
- **Auto**: In this mode, the camera actively analyzes the video to detect any moving object. If it detects movement, the camera begins to track the moving object. This mode is most useful for scenarios where no motion is expected in the scene.
- **Click**: In this mode, users can click an object moving in the live video image to enable the camera to track the movement of the selected object. This mode is most useful for scenarios where normal scene activity is expected.

If the Intelligent Tracking feature is set to Auto or Click, the live video image displays an eye icon with a symbol that conveys the state of Intelligent Tracking activity:

Graphic	Description	Explanation
	White eye, flashing	Intelligent Tracking is actively following a target.
	Gray eye with a red "X"	Intelligent Tracking lost the selected target and will wait for the target to reappear using the last known trajectory. During the IDLE state, the camera will not seek other objects in motion.
	Gray eye without a symbol	Intelligent Tracking is idle, waiting to track a target.
	Gray eye with a "pause" symbol	Intelligent Tracking attempts to track a target passively while a user has camera control.

Tracking triggered by IVA rules

In this mode, the camera continuously analyzes the scene for IVA alarms or IVA rule violations. If an IVA rule is violated, it triggers the advanced tracking feature of the camera to start following the object / person that triggered the alarm. This allows the camera to track moving objects of interest without getting distracted by other moving objects in the scene.
To activate this mode, you must enable IVA by selecting either IVA 5.6 or IVA 5.6 Flow in the **Analysis type** field of the **VCA** page (from the **SETTINGS** page, select **Advanced Mode > Alarm > VCA**). Refer to the *IVA 5.60 Operation Manual* for specific information.
If the **Show VCA metadata** option is selected in **LIVE Functions** (from the **SETTINGS** page, select **Advanced Mode > Web Interface > LIVE Functions**), the live view will show the following metadata objects in the **LIVE** page view:

– Objects in motion are initially identified in the video.
– Actively tracked object in motion are identified in the video.
– When an object in motion is lost, a diamond appears designating the area where the target was lost.

Several reasons may cause the Intelligent Tracking to stop tracking a target:

– The target has stopped moving while being followed by Intelligent Tracking.
– The target has moved behind a static object in the scene.

In these instances, Intelligent Tracking switches to the IDLE mode (pink eye icon) and waits for the target to reappear in the scene. The camera will restart tracking if a target starts moving in the same area where the initial target stopped moving or if the camera detects an object moving along the last known trajectory.

15.3 Recommended Use of Your Camera

Bosch recommends that you consider the following in order to optimize the life of your Bosch camera.

1. Guard Tours and Preset Tours
With the AUTODOME 7000 Series, you can cover a full 360° view using continuous Guard Tours or Preset Tours. Depending on the type of camera tour selected, your camera might be either in continuous motion (pan, tilt, or both) or moving between selected preset positions.

Continuous Guard Tours
Guard Tours are a very effective way of monitoring the entire scene; however, if not configured properly, continuous Guard Tours can reduce the service life of your camera considerably. Continuous Guard Tours should be used in applications where the tours are required to run for a fixed duration during the day (not more than twelve hours/day). Additionally, for best results, the continuous guard tour should be used in scenes with sufficient illumination levels (50 lux or better), should be at least 60 seconds in duration, and should have a smooth pan/tilt path (without erratic stops and starts), with the lens set at a wide angle (infinity focus). The tour should also include at least 10° of tilt movement.

Preset Tours
For scenarios that require the camera to be in continuous motion for most of the day, Bosch recommends that you set the camera in Preset Tour mode, moving between a desired set of presets. For best results, always ensure that each preset has a dwell time of at least 5 seconds.

Notice!
Presets should be saved with One Push (“Spot Focus”) only.

2. Scene Illumination and Focus Settings

Your camera uses a high-sensitivity image sensor and a high-quality lens with a precise drive train control to maintain the best focus of the image. The Autofocus mechanism tries continuously to make the image details appear sharp. Under low light and low contrast scenarios, the Autofocus algorithm may not be able to find the correct focus points because of the lack of detail in the scene. In this case, it will keep driving the focus motor to find the best focus. If this state continues for long, the focus mechanism of your camera could be damaged beyond repair.

For best results, maintain the scene illumination (visible light and/or IR illumination) to a level that allows the camera to easily resolve the details in the scene. The illumination requirements are site-specific and should be verified during camera installation and configuration. For best camera performance, the scene should have at least 50 lux of illumination.

For scenes where sufficient lux level cannot be maintained, the camera should be used with One Push (“Spot Focus”), and you should avoid using continuous Guard Tours.

3. Power-over-Ethernet (PoE)

Use the recommended Bosch High PoE 60W Midspan (sold separately from the camera) between the camera and your PoE network. Improper network connection can result in intermittent camera reboots. If the camera reboots frequently, test your camera with another power supply.

If you choose to use a PoE switch, ensure that the switch can support PoE+ (IEEE 802.3at, class 4 standard) devices to optimize its power management, and that the switch meets requirements for power draw for the product.

Warning!

Only in-ceiling models of the AUTODOME can be connected to a PoE+ switch. Outdoor models should be used only with the Bosch High PoE 60W Midspan.

4. Installation in an area with high humidity

Ideally, the bubble of your dome camera should remain in place. The dome contains a desiccant pack to control the level of moisture inside the camera. Removing the bubble from the dome exposes the desiccant to moisture that could negatively affect the performance of the camera. If you must remove the bubble (for example, to install or remove an SD card), do not leave the bubble off of the dome for longer than five minutes.

Bosch also recommends that you keep the dome camera in its packaging until you are ready to install the camera.

5. Installation in a corrosive environment (for example, near a coastline)

The fasteners and fixtures shipped with the camera help to keep the camera secure. Always use Bosch-supplied screws and other fasteners when installing or performing maintenance on the camera.

Before installation, inspect the metal parts of the camera for paint that is chipped or otherwise damaged. If you notice any paint damage, touch up the damage with locally available paint or sealants.

Avoid installation practices that may bring the camera’s metal mountings in contact with materials such as stainless steel. Such contacts can result in galvanic corrosion and degrade the cosmetic appearance of the camera. These cosmetic damages caused by improper installation are not covered by warranty as they do not affect the functionality of the camera.

6. Outdoor installation

Use proper surge suppression on your network video, power, audio, and alarm cables.

7. SD card

This information is provided to assist the customer in the selection of an appropriate SD device as a means for recording video. It is not an endorsement of a specific technology or supplier.

AUTODOME 7000 Series cameras can record video and audio to user-supplied local memory cards (SD, SDHC, or SDXC, hereafter referred to as “SD cards”). Bosch has identified best practices with respect to the selection and use of SD cards in the products.

1. Select an SD card with a read/write speed of at least 10MB/second and class 6.
2. Ensure that write protection is off. (Check the slider if applicable.)
3. Switch off power to the unit before inserting the SD card.
4. Stop recording and switch off power to the unit before removing the SD card.

Bosch recommends that you frequently check the recording status of your equipment. Periodic replacement of the SD card may be required. It is recommended that redundant recording systems are considered and that information is always backed up. As with all storage media, the “lifetime” of an SD card varies by supplier and use conditions. The lifetime of a SD card is normally dependent on the number of read/write activities.

Bosch provides this guidance as a service to our customers with no representation of warranty, either expressed or implied, associated with the use of SD cards for recording. Bosch is not liable for any damage that results from missing video information. Bosch does not make any commitments or promises regarding quality, performance, or other features with respect to third party products (such as SD cards).

16 Troubleshooting

If you experience difficulties operating your AUTODOME camera, refer to the following. If the guidelines do not enable you to solve the problem, contact an authorized technician.

Problem	Questions to Ask/Actions to Resolve the Problem
Need to remove trim ring.	Use a slotted screw driver and push the clips outward while gently pulling down on the edge of the trim ring.
Nothing appears on the screen.	Are the power cord and line connection between the camera and monitor made properly?
The image on the screen is dim.	Is the lens dirty? If so, clean the lens with a soft, clean cloth.
The contrast on the screen is too weak.	Adjust the contrast feature of the monitor. Is the camera exposed to strong light? If so, change the camera position.
The image on the screen is flickers.	Does the camera face directly into the sun or fluorescent lighting? If so, reposition camera.
The image on the screen is distorted.	Is the power frequency set properly in sync? If the power frequency is not set correctly, the line lock synchronization mode cannot be used. Set the synchronization mode to INT.NTSC Model power frequency in LL mode: 60 Hz.
No video	– Check that the mains power to the power supply is on. – Check to see if you have a web page. If you do not, then you may have the wrong IP address. Use Configuration Manager to identify the correct IP address. **If O.K., then:** – Check that there is 24 V output from the transformer. **If O.K., then:** – Check the integrity of all wires and mating connectors to the camera.
No camera control	– Ensure that the LAN cable has good connection and is secured. – Refresh the browser and ensure that video is updated. – For analog cameras: Cycle the camera's power off and on. For IP cameras: Ping the camera’s IP address and try again to control the camera.
Camera moves when moving other cameras	– Check that the camera’s IP address is properly set. **If camera’s IP address is not set, then:** – Use Configuration Manager to confirm that two cameras do not have the same IP address. If they do, change the address of one of the cameras.

Problem	Questions to Ask/Actions to Resolve the Problem
Picture is dark	– Check that the Gain Control is set to **High** via the Settings menu. **If O.K., then:** – Check that the Auto Iris Level is set to the appropriate level via the Settings menu. **If O.K., then:** – Check that the camera lens cover is removed. **If O.K., then:** – Check that the maximum Ethernet cable distance has not been exceeded. **If O.K., then:** – Restore all camera settings via the Settings menu.
Background is too bright to see subject	– Turn on backlight compensation via the Settings menu (or by using 20 Aux ON/OFF).
Video is rolling, noisy or distorted	– Check the frequency. - From the **SETTINGS** page, click **Advanced Mode**. - Click **Camera**, and then click **Installer Menu**. - In the **Base frame rate** field, choose either 25 ips or 30 ips. – Check the integrity of all connectors and splices of the Ethernet cable. **If O.K., then:** – Contact Bosch Technical Support.
Loss of Privacy when using Privacy Mask	– Webbrowsers, BVC or BVMS – Press the **FindHome** key on the Special Functions menu in order to align the mask back to the original position. – Intuikey (when keyboard is connected to BVC or BVMS – Issue a **SetScene 110** command in order to align the mask back to the original position.
No Network Connection	– Check all network connections. – Ensure that the maximum distance between any two Ethernet connections is 100 m (328 ft) or less. **If O.K., then:** – If you are behind a firewall, ensure that the Video Transmission mode is set to UDP. – Access the Settings Web page for the IP-enabled device. – Expand the Service Settings link, then click Network. – Select UDP from the Video Transmission drop-down list. Then click Set.

17 Maintenance

The bubble is made of Acrylic or Polycarbonate, depending on the application. Polycarbonate bubbles provide high impact resistance, and its optical clarity is comparable to glass or acrylic, although its surface is much softer. All bubbles require special care when handling and cleaning to avoid scratches.

Notice!

To avoid excessive moisture saturation inside the housing, limit the amount of time that the bubble is disconnected from the housing. Bosch recommends that the bubble be removed from the housing for no more than five (5) minutes.

Bubble Handling

The bubble may be packaged with a protective plastic sheet. It is recommended that the bubble remain stored this way until it is ready to install. Limit handling the bubble, as any scratches can quickly affect visibility.

Bubble Cleaning

If cleaning the bubble is required, use the following procedures and comply with all the warnings listed below.

Cleaning the Bubble Interior

The extremely soft interior surface should not be cleaned by rubbing or dusting with a cloth. Use clean dry compressed air, preferably from a spray can, to remove any dust from the interior surface.

Warning!

Do not use alcohol-based solutions to clean the bubble. This will cause the polycarbonate to cloud and over time cause stress aging, which makes the bubble brittle.

Cleaning the Bubble Exterior

The exterior of the bubble is hard coated for extra protection. If cleaning becomes necessary, only use cleaning solutions and cloths suitable for cleaning safety glass lenses. Dry the bubble thoroughly with a dry nonabrasive cloth to prevent water spots. Never scrub the bubble with any abrasive material or cleaners.

Bosch recommends cleaning the exterior of the bubble with NOVUS “No. 1” Plastic Clean & Shine (or equivalent), according to manufacturer’s instructions. Refer to www.novuspolish.com to order or to find a local distributor.

Cautions

- Do Not clean bubbles in the hot sun or on very hot days.
- Do Not use abrasive or highly alkaline cleaners on the bubble.
- Do Not scrape the bubble with razor blades or other sharp instruments.
- Do Not use Benzene, Gasoline, Acetone, or Carbon Tetrachloride on the bubble.

Remove an SD card

1. Follow the steps in one of these sections (depending on the type of camera mount): *Remove the bubble from an in-ceiling housing, page 68* or *Remove the bubble from a pendant housing, page 68*.
2. Press down the end of the SD card until it ejects partially from the connector.
3. Pull out the SD card and put it in a safe location.
4. Follow the steps in one of these sections (depending on the type of camera mount): *Replace the bubble in an in-ceiling housing, page 70* or *Replace the bubble in a pendant housing, page 70*.

18 Technical data

For product specifications, see the datasheets for AUTODOME IP 7000 Series and for AUTODOME HD 7000 Series, available on the appropriate product pages of the Online Product Catalog at www.boschsecurity.com.

19 User Command Table

Notice!
Some of the following commands may not apply to your camera.

Locked	Alarm Rule Output	Function Key	Comm No.	Command	Description
	Y	On/Off	1	Scan 360°	Auto Pan without limits
	Y	On/Off	2	Auto Pan	Auto Pan between limits
	Y	On/Off	8	Play Pre-position Tour	Activate/Deactivate
Y	Y	On/Off	18	AutoPivot Enable	Enables/disables AutoPivot
	Y	On/Off	20	Backlight Comp	Backlight Compensation
	Y	On/Off	24	Stabilization	Electronic Stabilization (Available only with the AUTODOME 7000 IP)
Y		On/Off	40	Restore Camera Settings	Restores all setting to their original defaults
Y	Y	On/Off	43	Auto Gain Control	AGC–On, Auto, Off
			50	Playback Tour A	Activate/Deactivate
			52	Playback Tour B	Activate/Deactivate
	Y	On/Off	57	Night Mode setting	Enables/Disables Night Mode (Day/ Night only)
Y	Y	On/Off	60	On Screen Display	On–enable Off–disable
Y	Y	On/Off	66	Display Software Version	Display software version information. Issue Once–presents basic information Issue Twice (while basic info displayed) –presents expanded information (HD models only)
		On/Off	78	Intelligent Tracking	Turns Intelligent Tracking on or off
Y	Y	On/Off	80	Digital Zoom Lock	Turns digital zoom on and off
Y	Y	On/Off	86	Sector Blanking	On–enable Off–disable
Y	Y	On/Off	87	Privacy Masking	On–enable Off–disable
	Y	On/Off	90	Command Lock/Unlock	On–lock on Off–lock off

Locked	Alarm Rule Output	Function Key	Comm No.	Command	Description
Y		On/Off	94	Set Azimuth Zero Point	Sets the zero degree pan position.
		On/Off	95	Display Azimuth/ Elevation Readings	On–Displays azimuth/elevation readings Off–Hides azimuth/elevation readings
		On/Off	96	Display Compass Heading	On–Displays compass heading Off–Hides compass heading
		On/Off	100	Record Tour A	On–start recording Off–stop recording
		On/Off	101	Record Tour B	On–start recording Off - stop recording
		On/Off	149	Turbo mode	On – activates turbo mode Off – deactivates turbo mode
		Set/Shot	901-999	Adds or removes presets from tour	Set ###–adds preset to tour Shot ###–removes preset from tour

Bosch Security Systems, Inc.
850 Greenfield Road
Lancaster, PA, 17601
USA
www.boschsecurity.com
© Bosch Security Systems, Inc., 2014